Appendix W

Standing with State and Other Accrediting Agencies: Reports

Commission on Accreditation of Athletic Training Education
Accreditation Council for Business Schools and Programs
American Chemical Society Committee on Professional Training
Accreditation Commission (EAC) of ABET
Council for the Accreditation of Educator Preparation
National Environmental Health Science and Protection Accreditation
Canadian Institute of Public Health Inspectors
International Fire Service Accreditation Congress
Accreditation Commission for Evaluation in Nursing
Commission on Collegiate Nursing Education

LAKE SUPERIOR STATE UNIVERSITY
my LSSU

David Myton <dmyton@lssu.edu>

Fwd: CAATE : Accept Report with no further action

6 messages

Joe Susi <jsusi@lssu.edu> Mon, Apr 11, 2016 at 12:26 PM
To: David Myton <dmyton@lssu.edu>

Dave,

Here is verification of acceptance of the CAATE Report.

JOE
---------- Forwarded message ----------
From: **CAATE** <caateinfo@caate.net>
Date: Mon, Dec 14, 2015 at 12:50 PM
Subject: CAATE : Accept Report with no further action
To: jsusi@lssu.edu

Dear Joseph Susi,

The Commission on Accreditation of Athletic Training Education (CAATE) has reviewed your program's Annual Report. The CAATE would like to inform you that your Annual Report **was accepted with no further action required.** Given this action, the program continues on its normal schedule for consideration of continued accreditation. The Commission may change your comprehensive review to an earlier time as a result of new or additional information from the program, changes in the activities of the program, information provided in future material from the program or changes needed in the accreditation review schedule.

The program is reminded to update information in e-Accreditation as it occurs since the information will populate next year's Annual Report and feed into future Self-Studies and benchmarking tools within e-Accreditation. Please review any comments on the Annual Report for recommendations for changes to next years data entry. It is the expectation that the program continue to submit Annual Reports and fees in a timely manner each year.

The CAATE commends the faculty, staff, and administrators for their commitment to the advancement of quality education in Athletic Training, as well as your dedication to the preparation of highly qualified Athletic Training professionals.

Sincerely,

Mark Merrick, PhD, ATC, FNATA
President, CAATE

David Myton <dmyton@lssu.edu> Mon, Apr 11, 2016 at 2:14 PM
To: Joe Susi <jsusi@lssu.edu>

Thank you Joe!
[Quoted text hidden]
--
David Myton, PhD

Joe Susi <jsusi@lssu.edu> Tue, Apr 12, 2016 at 7:55 AM
To: David Myton <dmyton@lssu.edu>

Dave,

I have confirmation from the previous year as well if you like.

JOE
[Quoted text hidden]

David Myton <dmyton@lssu.edu> Tue, Apr 12, 2016 at 10:21 AM
To: Joe Susi <jsusi@lssu.edu>

I'd be glad to combine the memos, thanks

> On Tue, Apr 12, 2016 at 7:55 AM, Joe Susi <jsusi@lssu.edu> wrote:
> Dave,
>
> I have confirmation from the previous year as well if you like.
>
> JOE
>
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> Thank you Joe!
>
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> JOE
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> Date: Mon, Dec 14, 2015 at 12:50 PM
> Subject: CAATE : Accept Report with no further action
> To: jsusi@lssu.edu
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>
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>
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> > Sincerely,
>
> Mark Merrick, PhD, ATC, FNATA
> President, CAATE
>
> --
> David Myton, PhD

--
David Myton, PhD

Joe Susi <jsusi@lssu.edu> Tue, Apr 12, 2016 at 11:51 AM
To: David Myton <dmyton@lssu.edu>

Here is the notice for the 13-14 academic year CAATE Report

JOE
---------- Forwarded message ----------
From: **CAATE** <caateinfo@caate.net>
Date: Tue, Mar 10, 2015 at 2:48 PM
Subject: CAATE : Accept Report with no further action
To: jsusi@lssu.edu
Cc: bkeller@lssu.edu, dmcpherson@lssu.edu

Dear Joseph Susi,

The Commission on Accreditation of Athletic Training Education has reviewed your Athletic Training Program's Annual Report. The CAATE would like to inform you that your Annual Report **was accepted with no further action required from the program.** Given this action, the program continues on its normal schedule for consideration of continued accreditation. The Commission may change this to an earlier time as a result of new or additional information, changes in the activities of the program, information provided in future material or changes needed in the accreditation review schedule.

The program is reminded to update information in e-Accreditation as it occurs since the information will populate next year's Annual Report and feed into future Self-Studies and benchmarking tools within e-Accreditation. It is the expectation that the program continue to submit annual reports and fees in a timely manner each year.

The Commission on Accreditation of Athletic Training Education commends the faculty, staff, and administrators for your commitment to the advancement of quality education in Athletic Training, as well as your dedication to the preparation of highly qualified Athletic Training professionals.

Sincerely,

Mark Laursen, MS, ATC

President, CAATE

David Myton <dmyton@lssu.edu> Tue, Apr 12, 2016 at 11:53 AM
To: Joe Susi <jsusi@lssu.edu>

Thank you!

David Myton

[Quoted text hidden]

CoAEMSP
Accreditation is *credible* education

Committee on Accreditation
of Educational Programs for the
Emergency Medical Services Professions

June 6, 2016

Thomas Pleger, PhD, President
Lake Superior State University
EMT-Paramedic Program
650 W. Easterday
Sault Ste. Marie, MI 49783

Sent CERTIFIED MAIL
Return Receipt Requested

Dear Dr. Pleger:

Re: Program #600673

At a recent Board meeting, the Committee on Accreditation of Educational Programs for the EMS Professions (CoAEMSP) considered the Progress Report submitted for the Paramedic Program sponsored by Lake Superior State University.

At that time, the Committee voted to table action and to request additional information further documenting the program's compliance with the ***Standards & Guidelines***.

II. Program Goals

B. Appropriateness of Goals and Learning Domains

The program must regularly assess its goals and learning domains. Program personnel must identify and respond to changes in the needs and/or expectations of its communities of interest.

An advisory committee, which is representative of these communities of interest, must be designated and charged with the responsibility of meeting at least annually, to assist program and sponsor personnel in formulating and periodically revising appropriate goals and learning domains, monitoring needs and expectations, and ensuring program responsiveness to change.

Rationale: No evidence that goals and learning objectives were reviewed by the advisory committee. No evidence advisory committee includes all the communities of interest.

Post Site Visit Response: The program provided an incomplete roster of the Advisory Committee which was scheduled to meet March 2016.

Submit minutes of advisory committee meetings demonstrating that the Advisory Committee has assisted program and sponsor personnel in formulating and periodically revising appropriate goals and learning domains with regard to at least the Minimum Expectations goal (Standard II.C). [CoAEMSP offers an Advisory Committee meeting template on www.coaemsp.org.]

*Submit a roster of the advisory committee showing representation from at least **each** community of interest listed in Standard II.A (i.e. students, graduates, faculty, sponsor administration, hospital/clinic representatives, physicians, employers, police and fire services, key governmental officials, the public).*

III. Resources

A. Type and Amount

1. Program Resources

Program resources must be sufficient to ensure the achievement of the program's goals and outcomes. Resources include, but are not limited to: faculty, clerical/support staff, curriculum, finances, classroom/laboratory facilities, ancillary student facilities, hospital/clinical affiliations, field/internship affiliations, equipment/supplies, computer resources, instructional reference materials, and faculty/staff continuing education.

Rationale: No low-fidelity manikin capable of C-arrest scenario (rhythm generator/airway/CPR) is available in EMS lab/classroom. New SIM center is state-of-the-art but shared with other programs and only available if scheduled (used 4hrs/week late in program). Instructors do not have keys. Students wishing to practice on campus with classroom resources do not have adequate manikin access.

Post Site Visit Response: The program submitted an equipment list but no evidence of a completed row #7 of the CoAEMSP Resource Assessment Matrix.

Submit documentation of the completion of all columns of row #7 (Equipment / Supplies) of the CoAEMSP Resource Assessment Matrix showing adequacy of the program resources in this area.

III. Resources

A. Type and Amount

2. Hospital/Clinical Affiliations and Field/Internship Affiliations

For all affiliations students shall have access to adequate numbers of patients, proportionally distributed by illness, injury, gender, age, and common problems encountered in the delivery of emergency care appropriate to the level of the Emergency Medical Services Profession(s) for which training is being offered.

Rationale: Critical care patients, pediatric, OB and psych goals are low or zero. Attempts to fix this with simulation were never documented in detail. Clinical and Field forms from the past years do not have number of contacts or affective evaluation, making it impossible to determine the number/nature of clinical contacts. Audit in the commercial tracking software is not possible. Students have wide ranges of airway practices/events documented; some with unrealistic numbers (110-177 of airway management events while others have 5 or fewer). Many cases of students without documentation of lab practice events or clinical events.

Post Site Visit Response: The program provided an action plan and Appendix G/H with many program minimums listed at zero (0). All procedures must have a minimum required number of at least two (2). No documentation that the Medical Director had approved nor the Advisory Committee endorsed the program required minimums. The program did not submit a complete cohort of summary tracking documentation.

Submit the program required minimum number of times each student must successfully perform each of the competencies (Appendix G/H in the self-study report format), including each pediatric age subgroup.

Describe how those minimums were established, and submit documentation of the approval by the

Medical Director (e.g., signed letter, email correspondence) and endorsement of the Advisory Committee (i.e. meeting Minutes).

*Submit **summary** tracking documentation of the number of times **each** student has successfully performed each of the competencies according to patient age (including pediatric age subgroups), pathologies, complaint, gender, and interventions to demonstrate that the program minimums are being met. [Note: The response needs to include the actual tracking documentation of all students; sample or blank forms are not sufficient.]*

Submit the Program's specific action plan for students who do not yet meet the program's minimum required numbers in the on-time educational activities of the curriculum (e.g., in the usual scheduled clinical and field internship activities). NOTE: simulation cannot be used for team leads.

III. Resources
B. Personnel
1. Program Director
a. Responsibilities
The program director must be responsible for all aspects of the program, including, but not limited to:
1) the administration, organization, and supervision of the educational program,
2) the continuous quality review and improvement of the educational program,
3) long range planning and ongoing development of the program,

Rationale: There is no evidence of a fully implemented preceptor training program. Review and audit of clinical and field internships did not occur in the depth needed to identify large gaps in data entry. The program director states one is planned, but has not been implemented. No evidence found for continuous quality improvement of the education program. No evidence found for long range planning and ongoing development of the program.

Post Site Visit Response: The program provided an action plan; however, no evidence of full implementation.

Submit documentation that preceptor orientation/training includes at least the following topics: purposes of the student rotation (minimum competencies, skills, and behaviors), evaluation tools used by the program, criteria of evaluation for grading students, contact information for the program, minimum number of required team leads, and program's definition of team lead.

Submit documentation of the dates of the preceptor training sessions (both clinical and field internship), the rosters of those preceptors who successfully completed the training, and the percentage of all preceptors who have successfully completed the training. Submit a roster of all active field internship preceptors.

For clinical experiences, submit evaluation of the experience, but that evaluation must include at least an overall, not necessarily individual, evaluation of the preceptors.

For field internship experiences, submit evaluation of the experience, but that evaluation must include an evaluation of each active field internship preceptor.

Submit documentation the program director is responsible for and fulfilling the duties of the program director:
1) the administration, organization, and supervision of the educational program;
2) the continuous quality review and improvement of the educational program;
3) long range planning and ongoing development of the program;

III. Resources
B. Personnel
2. Medical Director
a. Responsibilities
The medical director must be responsible for all medical aspects of the program, including but not limited to:
1) review and approval of the educational content of the program curriculum to certify its ongoing appropriateness and medical accuracy,
2) review and approval of the quality of medical instruction, supervision, and evaluation of the students in all areas of the program,
3) review and approval of the progress of each student throughout the program and assist in the development of appropriate corrective measures when a student does not show adequate progress,

4) assurance of the competence of each graduate of the program in the cognitive, psychomotor, and affective domains,

Rationale: The medical director was recently hired at the time of the site visit (3 weeks) and no evidence found that in recent years the review and approval of educational content for appropriateness and medical content had taken place; the quality of medical instruction, supervision, and evaluation of students in all areas; or the progress of each student throughout the program and assisted in development of corrective measures. No evidence of signed terminal competency forms.

Post Site Visit Response: The program did not provide evidence that the Medical Director has fulfilled these responsibilities; however, the earliest opportunity for the Medical Director to meet the responsibilities is April 2016.

Submit documentation that the medical director:
1) reviews and approves educational content of the program curriculum (e.g., signed memorandum stating nature of review activities, dates conducted, etc);
2) reviews and approves the quality of medical instruction, supervision, and evaluation of the students in all areas of the program (e.g., signed memorandum stating nature of review activities, dates of review, etc);
3) reviews and approves of the progress of each student throughout the program and assists in the development of appropriate corrective measures (e.g., description of activities, date(s) of communication with program director for such activities, etc);
4) assures the competence of each graduate of the program in the cognitive, psychomotor, and affective domains (e.g., terminal competency forms for each graduate signed and dated by Medical Director); [A CoAEMSP Terminal Competency form is available on the CoAEMSP web site for use by the program, if so desired.]
[Note: The response needs to include the actual documentation; sample or blank forms are not sufficient.]

III. Resources
B. Personnel
2. Medical Director
b. Qualifications
The medical director must:
4) be knowledgeable about the education of the Emergency Medical Services Professions, including professional, legislative and regulatory issues regarding the education of the Emergency Medical Services Professions.

Rationale: No evidence the medical director is knowledgeable about EMS education including professional, legislative, regulatory issues.

Post Site Visit Response: The program provided a narrative that the Medical Director was becoming a member of NAEMSP; however, no evidence by Curricula Vitae was provided of knowledge regarding professional, legislative, and regulatory issues of EMS education.

Submit documentation the medical director is knowledgeable about the education of the Emergency Medical Services Professions, including professional, legislative and regulatory issues regarding the education of the Emergency Medical Services Professions.

III. Resources
C. Curriculum
1. The curriculum must ensure the achievement of program goals and learning domains. Instruction must be an appropriate sequence of classroom, laboratory, clinical, and field/internship activities. Instruction must be based on clearly written course syllabi describing learning goals, course objectives, and competencies required for graduation.
The program must demonstrate by comparison that the curriculum offered meets or exceeds the content and competency demands of the latest edition of the United States Department of Transportation, National Highway Traffic Safety Administration, National Emergency Medical Services Core Content, Scope of Practice Model, and Education Standards, and the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions Curriculum Supplement.

Rationale: Syllabi do not reflect requirements for documentation of clinical contacts.

Post Site Visit Response: The program did not provide evidence of a clearly written course syllabi including minimum clinical patient contacts.

Submit evidence instruction is based on clearly written course syllabi describing learning goals, course objectives, and competencies required for graduation.

IV. Student and Graduate Evaluation/Assessment
A. Student Evaluation
1. Frequency and Purpose
Evaluation of students must be conducted on a recurrent basis and with sufficient frequency to provide both the students and program faculty with valid and timely indications of the students'

progress toward and achievement of the competencies and learning domains stated in the curriculum.

Rationale: Program faculty are using a mixture of commercial products and modified items/exams. No item analysis has been run. No review or revision of questions based on point biserials. Exams appeared to have higher level items but scores from students were 100%, so perhaps too easy. One graduate stated students were given quizzes and exam to take home with answers. Seven of 10 students in 2014 cohort failed the summative written exam but were graduated anyway. Examples of highest scores on second attempt at same exam are 58%, 59%, and 65%. Field internship records are spotty, showing students without narratives, or with discrepancies on signed paper copies and what is in the commercial tracking software being used (Fisdap).

Post Site Visit Response: The program submitted evidence of validity and reliability of the program's major exams. The program did not provide evidence of changes made based on the validity and reliability based on item analysis. The program did not provide evidence of a representative sample of completed graded comprehensive summative evaluations in all three (3) domains of learning for 3 or 10% of the students, whichever is greater.

Submit evidence of validity and reliability by item analysis (percentage of students answering each item correctly is satisfactory and correlation of item performance to students' overall exam score).

Additionally, correlation to valid external exams, such as national and/or state exams may be submitted.

Considering all the data collected by the program from the method(s) used, submit documentation of the program's analysis of that data, and the changes made, if any, based on the program's analysis. NOTE: For a given exam, state 1 or 2 items (give the item #'s) where statistics prompted a review, and state the results of that review for those item(s) (e.g., multiple keying of the item, revision of the item content, review of the curriculum for that content, confirmation that the item was acceptable, etc).

[For assistance in student evaluation, CoAEMSP has obtained permission from the National Association of EMS Educators (NAEMSE) and Delmar, Cengage Learning to reproduce and make available to you Chapter 21 "Using Written Evaluation Tools" from the Foundations of Education: An EMS Approach, 2nd Edition book. It is attached.]

Submit a representative sample of completed, graded comprehensive summative evaluations from the most recently graduated students that are used to measure the cognitive, psychomotor, and affective learning domains for 3 or 10% of the students, whichever is greater. [Note: The response needs to include the actual documentation; sample or blank forms are not sufficient.]

IV. Student and Graduate Evaluation/Assessment
A. Student Evaluation
2. Documentation
Records of student evaluations must be maintained in sufficient detail to document learning progress and achievements.

Rationale: Two student files showed a "not passing" grade (as defined by the program) in a cardiology course resulting in the students being exited from the program, then re-admitted and completed without explanation of appeal grounds or due process findings. One student reported filing grievance due to grade inflation for some students, but not for her; as well as a harassment, but no records could be found describing the grievance or its outcome. Student also reported 12:1 student/faculty ratios in lab which in violation of state regulation (requiring 6:1). No documentation of this was in the file. Evidence that multiple students graduated with failed summative exam scores.

Post Site Visit Response: The program did not provide any terminal competency forms and, according to the program's response, some students are not meeting the program required minimums for graduation.

Submit student records for a minimum of 3 or 10% of the students that show the program maintains a record of student performance on every didactic evaluation, psychomotor evaluation, affective evaluation(s), and student performance on every field internship evaluation. The records could be a summary of scores or the individual graded skill sheets. Documentation shows progression of the students toward terminal competency. The record could be a summary of scores or the individual evaluation instruments. Documentation should show progression of the students to the role of team leader as required by the program. Submit documentation the program has a document signed by the Medical Director and the Program Director showing that the student has achieved the established terminal competencies for all phases of the program.

The required Progress Report addressing the above citations must be sent **in an electronic format (via email or, if too large to send via email, via fileshare upload)** to the Executive Office on or before **December 1, 2016 as a single pdf document using the attached progress report template.** Email submissions should be sent to Karen Franks at karen@coaemsp.org. For instructions on uploading your electronic report to the **CoAEMSP fileshare** please contact Karen Franks in the Executive Office.

Failure to submit the Progress Report by **December 1, 2016** may result in a delayed recommendation or considered for an adverse accreditation recommendation at the Committee's **February 2017** meeting.

Sincerely,

George W. Hatch, Jr., Ed.D, LP, EMT-P
CoAEMSP Executive Director

cc: Scott A. Brandenburg, BS, EMTP, EMS I/C, Program Director
Ron Hutchins, MSN, RN, CNE, Dean
MI State EMS Official
MI State Training Coordinator
Thomas B. Brazelton, MD, MPH, FAAP, CoAEMSP Chair

Program Progress Report

Program ID#:	**600673**	# of citations:	**9**	Deadline:	**December 1, 2016**
Sponsor Name:	Lake Superior State University				

Report submitted by:	
Date Submitted:	
Next Graduation Date(s):	

Directions: Programs are required to submit their Progress Reports (PR) to CoAEMSP using the format below. Once the program has prepared its response, the PR must be submitted as a **single, complete pdf document**, sent in electronic format (CD, flash drive, email) **by the designated deadline above, to the attention of Karen Franks**.

To submit by mail (CD, DVD, or flash drives):

CoAEMSP-Attn: Karen Franks
8301 Lakeview Pkwy.
Suite 111-312
Rowlett, TX 75088

To submit by email: **email karen@coaemsp.org**

If your file is too large to submit via email (rare): send an email request to karen@coaemsp.org - include program name, program number, and program director's name/email address - an account will be created for you and instructions will be sent to you advising how to upload your document.

In each shaded box, provide the documentation/evidence of how the program has addressed the citation.

Standard cited, Rationale for Citation, *Suggested Documentation*:

- **II. Program Goals**
  B. Appropriateness of Goals and Learning Domains
  The program must regularly assess its goals and learning domains. Program personnel must identify and respond to changes in the needs and/or expectations of its communities of interest.

  An advisory committee, which is representative of these communities of interest, must be designated and charged with the responsibility of meeting at least annually, to assist program and sponsor personnel in formulating and periodically revising appropriate goals and learning domains, monitoring needs and expectations, and ensuring program responsiveness to change.

Rationale: No evidence that goals and learning objectives were reviewed by the advisory committee. No evidence advisory committee includes all the communities of interest.

Post Site Visit Response: The program provided an incomplete roster of the Advisory Committee which was scheduled to meet March 2016.

Submit minutes of advisory committee meetings demonstrating that the Advisory Committee has assisted program and sponsor personnel in formulating and periodically revising appropriate goals and learning domains with

regard to at least the Minimum Expectations goal (Standard II.C). [CoAEMSP offers an Advisory Committee meeting template on www.coaemsp.org.]

*Submit a roster of the advisory committee showing representation from at least **each** community of interest listed in Standard II.A (i.e. students, graduates, faculty, sponsor administration, hospital/clinic representatives, physicians, employers, police and fire services, key governmental officials, the public).*

Enter program response to this citation (enter narrative followed by all supporting documentation):

Standard cited, Rationale for Citation, *Suggested Documentation*:

- **III. Resources**
  A. Type and Amount
  1. Program Resources
  Program resources must be sufficient to ensure the achievement of the program's goals and outcomes. Resources include, but are not limited to: faculty, clerical/support staff, curriculum, finances, classroom/laboratory facilities, ancillary student facilities, hospital/clinical affiliations, field/internship affiliations, equipment/supplies, computer resources, instructional reference materials, and faculty/staff continuing education.

Rationale: No low-fidelity manikin capable of C-arrest scenario (rhythm generator/airway/CPR) is available in EMS lab/classroom. New SIM center is state-of-the-art but shared with other programs and only available if scheduled (used 4hrs/week late in program). Instructors do not have keys. Students wishing to practice on campus with classroom resources do not have adequate manikin access.

Post Site Visit Response: The program submitted an equipment list but no evidence of a completed row #7 of the CoAEMSP Resource Assessment Matrix.

Submit documentation of the completion of all columns of row #7 (Equipment / Supplies) of the CoAEMSP Resource Assessment Matrix showing adequacy of the program resources in this area.

Enter program response to this citation (enter narrative followed by all supporting documentation):

Standard cited, Rationale for Citation, *Suggested Documentation*:

- **III. Resources**
  A. Type and Amount
  2. Hospital/Clinical Affiliations and Field/Internship Affiliations
  For all affiliations students shall have access to adequate numbers of patients, proportionally distributed by illness, injury, gender, age, and common problems encountered in the delivery of emergency care appropriate to the level of the Emergency Medical Services Profession(s) for which training is being offered.

Rationale: Critical care patients, pediatric, OB and psych goals are low or zero. Attempts to fix this with simulation were never documented in detail. Clinical and Field forms from the past years do not have number of contacts or affective evaluation, making it impossible to determine the number/nature of clinical contacts. Audit in the commercial tracking software is not possible. Students have wide ranges of airway practices/events documented; some with unrealistic numbers (110-177 of airway management events while others have 5 or fewer). Many cases of students without documentation of lab practice events or clinical events.

Post Site Visit Response: The program provided an action plan and Appendix G/H with many program minimums listed at zero (0). All procedures must have a minimum required number of at least two (2). No documentation that the Medical Director had approved nor the Advisory Committee endorsed the program required minimums. The program did not submit a complete cohort of summary tracking documentation.

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Describe how those minimums were established, and submit documentation of the approval by the Medical Director (e.g., signed letter, email correspondence) and endorsement of the Advisory Committee (i.e. meeting Minutes).

*Submit **summary** tracking documentation of the number of times **each** student has successfully performed each of the competencies according to patient age (including pediatric age subgroups), pathologies, complaint, gender, and interventions to demonstrate that the program minimums are being met. [Note: The response needs to include the actual tracking documentation of all students; sample or blank forms are not sufficient.]*

Submit the Program's specific action plan for students who do not yet meet the program's minimum required numbers in the on-time educational activities of the curriculum (e.g., in the usual scheduled clinical and field internship activities). NOTE: simulation cannot be used for team leads.

Enter program response to this citation (enter narrative followed by all supporting documentation):

Standard cited, Rationale for Citation, *Suggested Documentation*:

- **III. Resources**
  B. Personnel
  1. Program Director
  a. Responsibilities
  The program director must be responsible for all aspects of the program, including, but not limited to:
  1) the administration, organization, and supervision of the educational program,
  2) the continuous quality review and improvement of the educational program,
  3) long range planning and ongoing development of the program,

Rationale: There is no evidence of a fully implemented preceptor training program. Review and audit of clinical and field internships did not occur in the depth needed to identify large gaps in data entry. The program director states one is planned, but has not been implemented. No evidence found for continuous quality improvement of the education program. No evidence found for long range planning and ongoing development of the program.

Post Site Visit Response: The program provided an action plan; however, no evidence of full implementation.

Submit documentation that preceptor orientation/training includes at least the following topics: purposes of the student rotation (minimum competencies, skills, and behaviors), evaluation tools used by the program, criteria of evaluation for grading students, contact information for the program, minimum number of required team leads, and program's definition of team lead.

Submit documentation of the dates of the preceptor training sessions (both clinical and field internship), the rosters of those preceptors who successfully completed the training, and the percentage of all preceptors who have successfully completed the training. Submit a roster of all active field internship preceptors.

For clinical experiences, submit evaluation of the experience, but that evaluation must include at least an overall, not necessarily individual, evaluation of the preceptors.

For field internship experiences, submit evaluation of the experience, but that evaluation must include an evaluation of each active field internship preceptor.

Submit documentation the program director is responsible for and fulfilling the duties of the program director:
1) the administration, organization, and supervision of the educational program;
2) the continuous quality review and improvement of the educational program;
3) long range planning and ongoing development of the program;

Enter program response to this citation (enter narrative followed by all supporting documentation):

Standard cited, Rationale for Citation, *Suggested Documentation*:

- **III. Resources**
  B. Personnel
  2. Medical Director
  a. Responsibilities
  The medical director must be responsible for all medical aspects of the program, including but not limited to:
  1) review and approval of the educational content of the program curriculum to certify its ongoing appropriateness and medical accuracy,
  2) review and approval of the quality of medical instruction, supervision, and evaluation of the students in all areas of the program,
  3) review and approval of the progress of each student throughout the program and assist in the development of appropriate corrective measures when a student does not show adequate progress,
  4) assurance of the competence of each graduate of the program in the cognitive, psychomotor, and affective domains,

Rationale: The medical director was recently hired at the time of the site visit (3 weeks) and no evidence found that in recent years the review and approval of educational content for appropriateness and medical content had taken place; the quality of medical instruction, supervision, and evaluation of students in all areas; or the progress of each student throughout the program and assisted in development of corrective measures. No evidence of signed terminal competency forms.

Post Site Visit Response: The program did not provide evidence that the Medical Director has fulfilled these responsibilities; however, the earliest opportunity for the Medical Director to meet the responsibilities is April 2016.

Submit documentation that the medical director:

1) reviews and approves educational content of the program curriculum (e.g., signed memorandum stating nature of review activities, dates conducted, etc);

2) reviews and approves the quality of medical instruction, supervision, and evaluation of the students in all areas of the program (e.g., signed memorandum stating nature of review activities, dates of review, etc);

3) reviews and approves of the progress of each student throughout the program and assists in the development of appropriate corrective measures (e.g., description of activities, date(s) of communication with program director for such activities, etc);

4) assures the competence of each graduate of the program in the cognitive, psychomotor, and affective domains (e.g., terminal competency forms for each graduate signed and dated by Medical Director); [A CoAEMSP Terminal Competency form is available on the CoAEMSP web site for use by the program, if so desired.]

[Note: The response needs to include the actual documentation; sample or blank forms are not sufficient.]

Enter program response to this citation (enter narrative followed by all supporting documentation):

Standard cited, Rationale for Citation, *Suggested Documentation*:

- **III. Resources**
  B. Personnel
  2. Medical Director
  b. Qualifications
  The medical director must:
  4) be knowledgeable about the education of the Emergency Medical Services Professions, including professional, legislative and regulatory issues regarding the education of the Emergency Medical Services Professions.

Rationale: No evidence the medical director is knowledgeable about EMS education including professional, legislative, regulatory issues.

Post Site Visit Response: The program provided a narrative that the Medical Director was becoming a member of NAEMSP; however, no evidence by Curricula Vitae was provided of knowledge regarding professional, legislative, and regulatory issues of EMS education.

Submit documentation the medical director is knowledgeable about the education of the Emergency Medical Services Professions, including professional, legislative and regulatory issues regarding the education of the Emergency Medical Services Professions.

Enter program response to this citation (enter narrative followed by all supporting documentation):

Standard cited, Rationale for Citation, *Suggested Documentation*:

- **III. Resources**
  C. Curriculum
  1. The curriculum must ensure the achievement of program goals and learning domains. Instruction must be an appropriate sequence of classroom, laboratory, clinical, and field/internship activities. Instruction must be based on clearly written course syllabi describing learning goals, course objectives, and competencies required for graduation.
  The program must demonstrate by comparison that the curriculum offered meets or exceeds the content and competency demands of the latest edition of the United States Department of Transportation, National Highway Traffic Safety Administration, National Emergency Medical Services Core Content, Scope of Practice Model, and Education Standards, and the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions Curriculum Supplement.

Rationale: Syllabi do not reflect requirements for documentation of clinical contacts.

Post Site Visit Response: The program did not provide evidence of a clearly written course syllabi including minimum clinical patient contacts.

Submit evidence instruction is based on clearly written course syllabi describing learning goals, course objectives, and competencies required for graduation.

Enter program response to this citation (enter narrative followed by all supporting documentation):

Standard cited, Rationale for Citation, *Suggested Documentation*:

- **IV. Student and Graduate Evaluation/Assessment**
  A. Student Evaluation
  1. Frequency and Purpose
  Evaluation of students must be conducted on a recurrent basis and with sufficient frequency to provide both the students and program faculty with valid and timely indications of the students' progress toward and achievement of the competencies and learning domains stated in the curriculum.

Rationale: Program faculty are using a mixture of commercial products and modified items/exams. No item analysis has been run. No review or revision of questions based on point biserials. Exams appeared to have higher level items but scores from students were 100%, so perhaps too easy. One graduate stated students were given quizzes and exam to take home with answers. Seven of 10 students in 2014 cohort failed the summative written exam but were graduated anyway. Examples of highest scores on second attempt at same exam are 58%, 59%, and 65%. Field internship records are spotty, showing students without narratives, or with discrepancies on signed paper copies and what is in the commercial tracking software being used (Fisdap).

Post Site Visit Response: The program submitted evidence of validity and reliability of the program's major exams. The program did not provide evidence of changes made based on the validity and reliability based on item analysis. The program did not provide evidence of a representative sample of completed graded comprehensive summative evaluations in all three (3) domains of learning for 3 or 10% of the students, whichever is greater.

Submit evidence of validity and reliability by item analysis (percentage of students answering each item correctly is satisfactory and correlation of item performance to students' overall exam score).

Additionally, correlation to valid external exams, such as national and/or state exams may be submitted.

Considering all the data collected by the program from the method(s) used, submit documentation of the program's analysis of that data, and the changes made, if any, based on the program's analysis. NOTE: For a given exam, state 1 or 2 items (give the item #'s) where statistics prompted a review, and state the results of that review for those item(s) (e.g., multiple keying of the item, revision of the item content, review of the curriculum for that content, confirmation that the item was acceptable, etc).

[For assistance in student evaluation, CoAEMSP has obtained permission from the National Association of EMS Educators (NAEMSE) and Delmar, Cengage Learning to reproduce and make available to you Chapter 21 "Using Written Evaluation Tools" from the Foundations of Education: An EMS Approach, 2nd Edition book. It is attached.]

Submit a representative sample of completed, graded comprehensive summative evaluations from the most recently graduated students that are used to measure the cognitive, psychomotor, and affective learning domains for 3 or 10% of the students, whichever is greater. *[Note: The response needs to include the actual documentation; sample or blank forms are not sufficient.]*

Enter program response to this citation (enter narrative followed by all supporting documentation):

Standard cited, Rationale for Citation, *Suggested Documentation*:

- **IV. Student and Graduate Evaluation/Assessment**
  A. Student Evaluation
  2. Documentation
  Records of student evaluations must be maintained in sufficient detail to document learning progress and achievements.

Rationale: Two student files showed a "not passing" grade (as defined by the program) in a cardiology course resulting in the students being exited from the program, then re-admitted and completed without explanation of appeal grounds or due process findings. One student reported filing grievance due to grade inflation for some students, but not for her; as well as a harassment, but no records could be found describing the grievance or its outcome. Student also reported 12:1 student/faculty ratios in lab which in violation of state regulation (requiring 6:1). No documentation of this was in the file. Evidence that multiple students graduated with failed summative exam scores.

Post Site Visit Response: The program did not provide any terminal competency forms and, according to the program's response, some students are not meeting the program required minimums for graduation.

Submit student records for a minimum of 3 or 10% of the students that show the program maintains a record of student performance on every didactic evaluation, psychomotor evaluation, affective evaluation(s), and student performance on every field internship evaluation. The records could be a summary of scores or the individual graded skill sheets. Documentation shows progression of the students toward terminal competency. The record could be a summary of scores or the individual evaluation instruments. Documentation should show progression of the students to the role of team leader as required by the program. Submit documentation the program has a document signed by the Medical Director and the Program Director showing that the student has achieved the established terminal competencies for all phases of the program.

Enter program response to this citation (enter narrative followed by all supporting documentation):

ACCREDITATION COUNCIL FOR BUSINESS SCHOOLS AND PROGRAMS

Bringing Together Those Dedicated to Teaching Excellence

December 12, 2014 - Revised

Dr. Thomas Pleger
President
Lake Superior State University
650 W. Easterday Avenue
Sault Ste. Marie, MI 49783-1699

Dear Dr. Pleger,

Congratulations! The Board of Commissioners of the Baccalaureate/Graduate Degree Commission met on November 17-18, 2014 and granted initial accreditation to Lake Superior State University with five Notes and one Condition for your business programs.

Conditions and notes indicate that either the Standard or Criteria is not fully met, and should be viewed as an opportunity to move your program to a higher level of excellence. It would be extremely rare that a school receive accreditation without these conditions or notes given ACBSP's Core Value of Continuous Improvement and Organizational Learning, that "Business schools and programs should pursue regular cycles of planning, execution, and evaluation of every process and system. Ongoing improvement of these processes and systems leads to ever higher quality and student/stakeholder satisfaction." The notes and conditions placed on your programs are:

Note on Standard Three, Criterion 3.3: While listening and learning methods for various stakeholders are addressed, a periodic review of these methods was neither articulated nor apparent. Such a review may benefit LSB's efforts to assure that educational services are current and relevant.

Note on Standard Three, Criterion 3.4: Although stakeholder input is part of planning efforts and service improvements, the integration of feedback from stakeholders appears to be an informal process. A formal, systematic process may provide valuable information which could be used to proactively impact performance.

Note on Standard Four, Criterion 4.4: Assessment results and action plans are not linked with each other in the documents in the custody of the LSB as well as in the information published in the institution's data collection tool, TracDat. Linking results with actions may contribute to both efficiency and efficacy in data analysis and the documentation of that analysis as a driver of program improvement.

Note on Standard Five, Criterion 5.3.2.b: Historically, accredited programs should have at least 40 percent of the undergraduate credit hours in business and 70 percent of the graduate credit hours in business taught by academically qualified (AQ) faculty members. Please develop a plan to meet these goals or present a rationale for the difference and provide detailed records of student learning outcomes (SLO) to demonstrate that your faculty composition supports your mission and program objectives.

Note on Standard Six, Criterion 6.1.3: Please review all syllabi of the courses in which the contents of the CPC are included to ensure that the required CPC hours are evident. Ethics, in particular, was not evident that sufficient coverage is documented when matching the course topics against the stated hours of coverage.

Condition on Standard Six, Criterion 6.1.4.b: Please demonstrate that a sufficient foundation exists in general education which should, generally, be the equivalent of 40 percent of the hours required for the degree. Communication and critical thinking skills should be addressed.

The condition must be removed by **9/15/2018**, and progress on the condition and notes must be reported in future Quality Assurance Reports. You are encouraged to work with Dr. Charlene Conner on the removal of the notes and conditions. Dr. Charlene Conner may be contacted by phone at: 214-333-5239, or through her e-mail address at: charconn@live.com. You may also contact Dr. Ron DeYoung, Executive Liaison, Baccalaureate/Graduate Degree Commission, at 816-695-9585, or by email at rdeyoung1@kc.rr.com.

Your first Quality Assurance Report will be due on **9/15/2016**, and every two years after that. Your ten-year reaffirmation will be due in **2024**.

ACBSP will inform the public of decisions on accreditation status made by the Boards of Commissioners by posting the accreditation decisions on the ACBSP Website. The decisions on accreditation status can be accessed from the following link: Accreditation Decisions and will appear as the following:

Lake Superior State University
Initial Accreditation with improvement opportunities in the following standards:

Standard 3, Criterion 3.3 and 3.4 - Student and Stakeholder Focus
Standard 4, Criterion 4.4 - Measurement and Analysis of Student Learning and Performance
Standard 5, Criterion 5.3.2.b - Faculty and Staff Focus
Standard 6, Criterion 6.1.4.b - Educational and Business Process Management

If you have any comments concerning this notification please let me know.

ACBSP encourages you to publicly announce that your business programs are accredited. Next week, we will be sending you, via e-mail, a sample ACBSP Press Release and ACBSP Logo files for publicizing your accreditation. As you prepare these materials, the following is your official ACBSP statement:

The following business programs at Lake Superior State University are accredited by the Accreditation Council for Business Schools and Programs:

Accounting, BS
Business Administration-Entrepreneurship, BS
Business Administration-International Business, BS
Business Administration-Management, BS
Business Administration-Marketing, BS
Finance and Economics, BS

Programs excluded from ACBSP accreditation must by clearly distinguished to the public. For example, your website should state that the Bachelor of Science in Business Administration –Generalist degree is regionally accredited, but has been excluded from ACBSP accreditation at this time.

Please take this opportunity to review the accuracy of the programs listed above as well as the institution name (below) as it will appear on your Certificate of Accreditation. If any information is not correct, please notify Diana Hallerud via email at dianahallerud@acbsp.org and provide the correction by January 31, 2015.

Name of institution as it will appear on the certificate:

Lake Superior State University
Sault Ste. Marie, MI

Please mark your calendar to join us for our Annual Conference June 12-15, 2015, where we will honor you and all other schools receiving initial or reaffirmation of accreditation during the 2014-2015 membership year. The conference will be held in Philadelphia, Pennsylvania and our host hotel will be the Philadelphia Marriott Downtown. You are encouraged to attend along with your Chief Academic Officer and Dean or Head of the Business School or Program. Many institutions invite faculty to this prestigious celebration. Your institution will also be announced during the Baccalaureate/ Graduate Degree Institution meeting held at the conference.

There will be a breakfast on Sunday morning June 14, 2015, for registered conference attendees from institutions receiving initial accreditation. The purpose of the breakfast is to more personally congratulate the institutional representatives and to outline the procedures that will be followed at the accreditation banquet. At least one institutional representative must attend the breakfast.

In addition to the breakfast, a professional photographer will be available on Sunday, June 14, 2015 to photograph all institutional representatives along with the ACBSP Director of Accreditation and the Chair of the Baccalaureate/Graduate Degree Board of Commissioners. Appropriate dress for the photo session and banquet is business professional.

For updates on the Conference, visit the ACBSP website, www.acbsp.org. On-line registration will be available January 2015.

Congratulations on maintaining such a high quality business program.

Sincerely,

Steve Parscale, Ph.D.
Director of Accreditation

c: Dr. Morrie Walworth, Provost, VPAAA
Dr. David Finley, Dean – Business & Engineering
Ms. Mindy McCready, Assistant Professor
Dr. Linda Schmitigal-Snyder, Associate Professor

Dr. Charlene Conner, Baccalaureate/Graduate Degree Board of Commissioners

2015 Periodic Report
to the
ACS Committee on Professional Training

Please consult the ACS Guidelines (http://www.acs.org/cpt) before completing this report. The information contained in this report should pertain only to your undergraduate program. To facilitate committee review, all responses must be provided on this form. Extra pages for the tables are available under the Templates tab on CPRS.

Name of Institution: Lake Superior State University

City, State, and Zip Code: 650 W. Easterday Ave., Sault Sainte Marie MI 49783

Report Prepared by (e.g., Dr. Mary Smith or Juan Ruiz): Dr. Derek D. Wright
E-mail Address: dwright1@lssu.edu
Phone Number: (906) 635-2628

Current Chemistry Department Chair
Name: Dr. Derek D. Wright
Title: Associate Professor

Name of Department: School of Physical Sciences

Section 1

1.1 Degrees Offered in Chemistry (check those offered)

- Bachelor's: ☒
- Master's: ☐
- Ph.D.: ☐

1.2 Number of Calendar Weeks per Term (not counting final exams)

- Semester: 14
- Quarter:
- 4-1-4:
- Other:

1.3 Provide the number of students in the current (most recently completed) academic year:

Entire Campus	2432
Undergraduates	2432
Chemistry Seniors	15
Sum of enrollments in all undergraduate chemistry courses	747

1.4 Provide the number of bachelor's-degree graduates during the past six years who went on to:

Graduate School in the Chemical Sciences	18
Medical and other Professional Schools	5
Industry	14
Teaching	0
Other/Unknown	14

Section 2: Institutional Environment

2.1 Is the institution accredited by a regional accrediting association? Yes ☒ No ☐

Name of Accrediting Association Higher Learning Commission

2.2 Is the chemistry department organized as an independent administrative unit? Yes ☐ No ☒

a. If no, how is the department or program administered and to whom does the department administrator report?

Chemistry is housed within the School of Physical Sciences, which also includes programs in the Environmnetal Sciences, and Geology. The School has a Chair, who reports to the Dean of Natural and Mathmatical Sciences.

b. If no, who controls budgetary, personnel, and teaching decisions for the chemistry program, and how are chemistry faculty involved?

Budgetary, some personnel, and course scheduling decisions are made primarily by the Chair of Physical Sciences, through close consultation with the faculty. These decisions are approved by the Dean.

2.3 Check the Minimum Salary for each Rank of Chemistry Faculty (Nine Months)

Minimum Salary	Professor	Associate Professor	Assistant Professor	Long-term, permanent
Below $51K	☐	☒	☒	☐
$51 - $60K	☒	☐	☐	☐
$61 - $70K	☐	☐	☐	☐
$71 - $80K	☐	☐	☐	☐
$81 - $90K	☐	☐	☐	☐
Over $90K	☐	☐	☐	☐

2.4 Chemistry Expenditures (rough estimates – 2 significant figures):

If your expenditures are over $60,000 per year, excluding internal and external grants, salaries, and library budget, check here ☒ and go to Item 2.5.

	Current	Annual Average Over the Past Five Years
Operating Expenditures Exclusive of Salaries		
Instrument Maintenance and Repair		
Student and Faculty Travel		
Grants		

2.5 Describe whether the level of institutional support allows the department to meet its teaching, infrastructure, and faculty development needs.

The Institution supports 8 faculty & 2 full time staff for lab prep and instrumentation maintenance. Our physical facilities are located in Crawford hall, which was renovated in the year 200. We have 5 instructional labs, one shared instrumentation room, 3 shared research labs dedicated primarily to chemistry instruction and research, and a central stockroom. In addition to the base budget and course fees which generate ~$85,000 annually, the Dean has a discretionary fund for instrument maintenace and replacement, which typically invests ~$40,000 annually in Chemistry equipment. Additional investments typically ~$30,000 annually are made using revenue generated by the Environmental Analysis Lab, a contract lab operated by the School.

Section 3: Faculty and Staff

3.1 Number of Chemistry Faculty in the Spring 2015 Academic Term **(If you have no faculty in a particular category, record a "0").** Please be sure the totals in the top row (Full-time/Part-time totals) add up below.

Faculty	Total Faculty	With Ph.D.	Male	Female	African American	Native American	Asian American	Hispani America
Permanent total	8	8	6	2	0	0	0	0
Full-time	8	8	6	2	0	0	0	0
Tenured	4	4	3	1	0	0	0	0
Pre-tenured	4	4	3	1	0	0	0	0
Long-term, non-tenure track	0	0	0	0	0	0	0	0
Part-time	0	0	0	0	0	0	0	0
Tenured	0	0	0	0	0	0	0	0
Pre-tenured	0	0	0	0	0	0	0	0
Long-term, non-tenure track	0	0	0	0	0	0	0	0
Temporary total	0	0	0	0	0	0	0	0
Full-time	0	0	0	0	0	0	0	0
Part-time	0	0	0	0	0	0	0	0

3.2 Number of Instructional Staff (Do not include faculty listed in Item 3.1 or Teaching Assistants. **If you have no instructional staff in a particular category, record a "0".**)

Instructional Staff	Total Staff	With Ph.D.	Male	Female	African American	Native American	Asian American	Hispani America
Long-term*	3	2	2	1	0	0	1	0
Full-time	0	0	0	0	0	0	0	0
Part-time	3	2	2	1	0	0	1	0
Temporary	0	0	0	0	0	0	0	0
Full-time	0	0	0	0	0	0	0	0
Part-time	0	0	0	0	0	0	0	0

* Employed for three years or more or expectation of employment for at least three years

3.3 The ACS is concerned about potential overreliance on temporary (part-time and full-time) faculty and instructional staff. If the total number of temporary (full- or part-time) faculty and instructional staff exceeds 50% of the number of permanent faculty and long-term instructional staff listed in items above (3.1 and 3.2), explain their roles in student instruction.

3.4 a. Briefly describe your activities (especially successes) in expanding faculty diversity over the last five years.

Consistant with state and federal laws, LSSU is an equal opportunity employer. All job postings include language encouraging diverse applicants, and positions are posted in the Chronicle of Higher Education, Higher Ed Jobs, and the LSSU Website. One female faculty member in Chemistry was hired in the last 5 years. Two other female faculty, one hispanic, were recently hired in Physics and Env. Sci

b. Describe any attributes of diversity among your faculty not captured in Items 3.1 and 3.2.

None

3.5 a. Number of Support Staff:

Secretarial	0.5
Stockroom	2
Instrument Technicians	
Other	

b. Comment on the adequacy of support staff:

Our suppoert staff consists of one Secretary (shared with Biology) and two full time staff members, a laboratory manager and a technician. The labopratory manager is responsible for managing the stockroom, ordering supplies, and ensureing that instrumentation is in working order. The Technician assists the laboratory manager in the stockroom and with instument maintenance and repair. We also employ 10-15 students 6-8 hrs per week each semster to assist with lab prep. This staffing arrangement has proven to be adequate to support our program.

3.6 Describe the professional development opportunities (including sabbaticals) that are available to chemistry faculty and instructional staff.

The Univeristy provides $1000 annually to faculty which can be used for professional development activities at their discretion. Each acadmic year, 3 semesters of paid sabattical are available to the Full time Faculty (~120 faculty). Two of the current Chemistry faculty have received a full year sabattical in the past 7 years. Additional professional development opportunities include support for seminar speakers and conference attendance through units such as the Faculty Center for Teaching, and the LSSU Foundation.

3.7 Report the number of chemistry faculty and instructional staff who have taken a sabbatical or professional leave in the last six years.

Requested 1
Granted 1

3.8 Teaching Contact Hours for 2014-2015 Academic Year (Classroom and Lab)
Please provide the minimum and maximum numbers that occurred during this academic year. **The ranges reported here should match the numbers reported in Table 3.1.**

a. Contact Hours/week for Chemistry Faculty (exclusive of research):
Range from 10 to 16 ; Average 14.3

b. Contact Hours/week for Instructional Staff:
Range from 2 to 6 ; Average 4

c. If you need to explain how contact hours are counted or if there is a special situation, for example, for online instruction please explain:

d. Are maximum and/or minimum teaching loads established as an institutional policy?
Yes ☒ No ☐

If yes, explain briefly:
Teaching loads are established under the Faculty Association agreement with a minimum of 12 contract hours per semester. One contract hour is equal to one hour of lecture instruction, while one hour of lab instruction is equal to 0.66 contract hours. Teaching load (release time) is awarded to the School Chair (3 hrs per semster) and coordinaters of multiple lab sections. The maximum load is 32 hrs/year

3.9 a. Do you use undergraduate student teaching assistants? Yes ☐ No ☒

If yes, answer items b. and c.

b. Describe the formal instruction and assistance in laboratory and/or classroom teaching provided to undergraduate student teaching assistants.

c. How are undergraduate teaching assistants supervised in the laboratory?

Table 3.1 – Teaching Contact Hours

Provide the **actual contact hours** per week for each individual involved in undergraduate instruction for the 2014-2015 academic year. List one faculty member per row and enter as many faculty per page as possible. List non-tenure-track faculty, temporary faculty, and instructional staff and **identify them with the key below**. Do not include graduate teaching assistants. If the average number of contact hours for your department is less than 12 contact hours per week, complete Table 3.1 for those individuals with 12 or greater contact hours per week. Additional copies of this table are available under the Template tab on CPRS.

	Fall Semester/1st Quarter 2014				Spring Semester/2nd Quarter 2015			
Faculty Member (list according to rank)	**Course Number and Title**	**1***	**2***	**3***	**Course Number and Title**	**1***	**2***	**3***
Curie, Marie (Professor)	CHEM112 – Gen Chem I CHEM 257 – O. Chem I CHEM 358 – O.Chem Lab (2 sections)	3 3 0	0 3 4	13	CHEM257 – Analytical Chemistry CHEM360 – O. Chem II	3 3	3 3	12
Iretski, Alexei (Professor)	CHEM115 - Gen Chem CHEM362 - P Chem 2 CHEM363 - P Chem Lab	4 3 0	4 0 3	14	CHEM115 - Gen Chem CHEM116 - Intro P Chem CHEM261 - Inorganic Chem CHEM461/462 - Adv Inorg Che	4 0 3 3	0 3 0 3	16
Werner, R. Marshall (Professor)	CHEM109 - App Chem Lab CHEM110 - App Org & Biochem CHEM351 - Biochem 1	0 3 3	3 0 6	15	CHEM110 - App Org & Biochem CHEM 115 - Gen Chem CXHEM452 - Adv Biochem	3 0 2	4 2 4	15
Wright, Derek (Associate Professor)	NSCI103 - Env Sci NSCI104 - Env Sci Lab EVRN317 - Env Health App	3 0 3	0 2 3	11	NSCI103 - Env Sci NSCI104 - Env Sci Lab NSCI116 - Oceanography	3 0 3	0 2 2	10
Heth, Christopher (Assistant Professor)	CHEM116 - Intro P Chem lab CHEM231 - Quant Analysis CHEM499 - Senior Sem HONR101 - Honors Sem 1	0 3 1 3	3 6 0 0	16	CHEM332 - Instrumental Anal CHEM445 - Forensic Sci CHEM499 - Senior Thesis	3 1 1	9 0 0	14
Johnson, Steven (Assistant Professor)	NSCI110 - Intro to Forensics CHEM115 - Gen Chem CHEM116 - Intro P Chem	3 4 4	2 2 0	15	CHEM116 - Intro P Chem CHEM445 - Forensic Sci	4 2	6 3	15
Kelly, Megan (Assistant Professor)	CHEM108 - Applied Chem EVRN425 - Env Sysytems NSCI104 - Env Sci lab USEM101 - Univ. Seminar 1	3 3 0 1	3 3 2 0	15	CHEM108 - Applied Chem CHEM115 - Gen Chem CHEM116 - Intro P Chem NSCI104 - Env Sci lab	3 0 0 0	3 2 3 4	15
Mosey, R. Adam (Assistant Professor)	CHEM110 - App Org & Biochem CHEM225 - Organic Chem 1 HONR302 - Honors Seminar	0 3 3	2 6 0	14	CHEM116 - Intro P chem CHEM226 - Organic Chem 2	0 3	3 9	15
Blanchard, Roger @ (Adjunct Instructor)	CHEM110 - App Org & Biochem CHEM115 - General Chem	0 0	2 2	4				0
Nguyen-Mosey, Thu @ (Adjunct Instructor)	CHEM115 - General Chem CHEM225 - Organic Chem 1	0 0	2 3	5	CHEM225 - Organic Chem 1	3	3	6
Southwell, Benjamin (Adjunct Instructor)	CHEM115 - General Chem	0	2	2	CHEM261 - Inorganic Chem	0	3	3

*1 Number of class hours scheduled per week.

*2 Number of contact hours of lab per week.

*3 Total of columns 1 and 2 for a grand total for each individual.

\# Non-tenure faculty

@ Temporary faculty and instructional staff

\+ Long-term instructional staff

Table 3.1 – Teaching Contact Hours (continued)

	Third Quarter 2015 (Do not report Summer hours.)			
Faculty Member (list according to rank)	**Course Number and Title**	**1***	**2***	**3***

*1 Number of class hours scheduled per week.

*2 Number of contact hours of lab per week.

*3 Total of columns 1 and 2 for a grand total for each faculty member.

\# Non-tenure faculty

@ Temporary faculty and instructional staff

\+ Long-term instructional staff

Section 4: Infrastructure

4.1 Comment on the adequacy and condition of your department's instruments and lab apparatus to meet your program's teaching and research needs. Describe the arrangements for repair and maintenance of instruments.

Instrumentation maintenance and repair is primarily conducted and coordinated by the science lab manager and the technician, with occasional assistance from faculty. Manufacturer service contracts are also utilized in some instances.

4.2 Do you rely on off-site instrumentation to meet your department's research needs? Yes ☐ No ☒

If yes, please describe the arrangement:

4.3 Comment on the adequacy of the facilities and space available for the undergraduate chemistry program.

We operate 5 instructional labs, 3 shared research labs, and a core instrumentation lab all dedicated to the undergraduate chemistry curriculum. We also share a computer lab which provides access to computational chemistry software (Spartan & Spartan Student). These facilites are properly supplied with safety equpiment including exhaust hoods, gas/vacuum etc., and are adequate to support our program.

4.4 a. Indicate the number of chemistry journals to which students have immediate institutional access on your campus. **If students have access to 30 or fewer chemistry journals, complete Table 4.2.**

30 or fewer ☐ More than 30 ☒

b. Do your students and faculty have access to journals that are not available on campus through interlibrary loan? Yes ☒ No ☐

c. What types of access do undergraduate students and faculty have to chemical information databases on your campus? (Check all that apply.)

Online through ChemSpider ☒
Online through SciFinder ☒
Online through STN ☐
Online through Web of Science ☐
Other access ☐
Specify _____

4.5 What is the maximum number of students in a laboratory section who are directly supervised per faculty member, instructional staff member, or teaching assistant? 24

Table 4.1 – Instrumentation and Specialized Laboratory Apparatus

If you have more than one particular instrument, please list up to two. **Only report functioning instrumentation that is used by undergraduate students.** If your department has more than one of a particular instrument type, please list the two newest.

Instrument/Apparatus	Used by Undergraduates		Year Acquired	Manufacturer and Model
	In Chemistry Course Work	In Research		
NMR spectrometer(s)	☒	☒	2006	Anasazi EM 360
	☐	☐		
Optical Molecular Spectroscopy	☒	☒		
IR spectrometer(s)	☒	☒	2009	Perkin Elmer Spectrum 1
	☐	☐		
UV-Vis spectrometer(s)	☒	☒	2010	Mol. Dev. Spectro Max M
	☒	☒	2009	Perkin Elmer Lamba 35
Other	☒	☒	2014	Shimadzu BioSpec-nano
Optical Atomic Spectroscopy	☒	☒		
Atomic absorption/emission	☒	☒	2014	Agilent 4200 MP-AES
	☒	☐	2000	Perkin Elmer AAnylist 3
Other	☐	☐		
Mass Spectrometry	☒	☒		
Mass spectrometer(s)	☒	☒	2003	Agilent 7500a ICP-MS
	☐	☐		
GC-Mass spectrometer(s)	☒	☒	2004	Agilent 6890N Series/59
	☒	☒	2001	HP 5890 Series II/5971
Other	☐	☐		
Chromatography and separations	☒	☒		
Gas chromatograph(s)	☒	☒	2000	Agilent 6890 GC/FID (3)
	☒	☒	2000	Agilent 6890 GC/TCD
Liquid chromatograph(s)	☒	☒	2009	Agilent 1100 PDA (4)
	☒	☒	2004	Waters 2695 PDA/Fluores
Gel electrophoresis	☒	☒	2011	CBS Sci. MGU-102T Horiz
	☒	☒	2015	Biorad Mini Protean Ver
Other	☒	☒	2015	Metrohm 930 Ion Chromat
Electrochemistry	☒	☒		
Electrochemical Instrumentation	☒	☒	2014	BASi Epsilon
	☐	☐		
Other	☐	☐		
Other	☒	☒		
Radiochemistry (including counting equipment and sources)	☐	☐		
	☐	☐		
Thermal analysis equipment	☐	☐		
	☐	☐		
Schlenklines and dry box apparatus	☒	☒	2014	2 Schlenklines
	☐	☐		
Imaging microscopy	☒	☒	1993	Jeol 6100 SEM-EDS w/LaB
	☐	☐		
Other	☒	☒	2010	TS Legend XFR Centrifug
Additional Instruments (over $10,000 in cost):				
	☒	☒	2015	AB StepOne Plus qPCR (2
	☐	☐		

Table 4.2 – Journal List

Indicate the current chemistry-related periodicals to which students have print or online access. Please use the blanks provided if you have additional journals to list.

General Content

- ☐ Accounts of Chemical Research
- ☐ ACS Central Science
- ☐ Angewandte Chemie Intl Edition in English
- ☐ Chemical Communications
- ☐ Chemical Science
- ☐ Chemistry – A European Journal
- ☐ Chemistry Letters
- ☐ Journal of the American Chemical Society
- ☐ Nature, Nature Chemistry
- ☐ New Journal of Chemistry
- ☐ Proceedings of the National Academy of Science
- ☐ Science

Topical titles

- ☐ ACS Chemical Biology
- ☐ ACS Chemical Neuroscience
- ☐ ACS Medicinal Chemistry Letters
- ☐ ACS Nano
- ☐ Advanced Functional Materials
- ☐ Advances in Heterocyclic Chemistry
- ☐ Advanced Materials
- ☐ Advanced Synthesis and Catalysis
- ☐ Advances in Protein Chemistry
- ☐ Analyst
- ☐ Analytica Chimica Acta
- ☐ Analytical and Bioanalytical Chemistry
- ☐ Analytical Biochemistry
- ☐ Analytical Chemistry
- ☐ Applied Catalysis A
- ☐ Applied Spectroscopy
- ☐ Beilstein Journal of Organic Chemistry
- ☐ Biochemical Journal
- ☐ Biochemistry
- ☐ Biochimica et Biophysica Acta
- ☐ Bioconjugate Chemistry
- ☐ Biomacromolecules
- ☐ Biomaterials
- ☐ Bioorganic Chemistry
- ☐ Bioorganic and Medicinal Chemistry Letters
- ☐ Chemical Education: Research and Practice
- ☐ Chemical Educator
- ☐ Chemistry of Materials
- ☐ ChemPhysChem
- ☐ Chemical Physics Letters
- ☐ Chirality
- ☐ Combinatorial Chemistry and High Throughput Screening
- ☐ Current Opinion in Chemical Biology
- ☐ Dalton Transactions
- ☐ Electrophoresis
- ☐ Environmental Science and Technology
- ☐ European Journal of Inorganic Chemistry
- ☐ European Journal of Organic Chemistry
- ☐ FEBS Journal
- ☐ Green Chemistry
- ☐ Heterocycles
- ☐ Inorganic Chemistry
- ☐ Journal of the American Society for Mass Spectrometry
- ☐ Journal of Applied Polymer Science
- ☐ Journal of Bacteriology
- ☐ Journal of Biological Chemistry
- ☐ Journal of Biological Inorganic Chemistry
- ☐ Journal of Catalysis
- ☐ Journal of Chemical Ecology
- ☐ Journal of Chemical Education
- ☐ Journal of Chemical Information and Modeling
- ☐ Journal of Chemical Physics
- ☐ Journal of Chemical Theory and Computation
- ☐ Journal of Chromatography A, B
- ☐ Journal of Medicinal Chemistry
- ☐ Journal of Molecular Biology
- ☐ Journal of Organic Chemistry
- ☐ Journal of Physical Chemistry A, B, C
- ☐ Journal of Physical Chemistry Letters
- ☐ Journal of Polymer Science Part A
- ☐ Journal of Proteome Research
- ☐ Langmuir
- ☐ Macromolecules
- ☐ Molecular Cell
- ☐ Nanoletters
- ☐ Nature Chemical Biology, Structural and Molecular Biology
- ☐ Nucleic Acids Research
- ☐ Organic and Biomolecular Chemistry
- ☐ Organic Letters
- ☐ Organometallics
- ☐ Physical Chemistry Chemical Physics
- ☐ PLOS One
- ☐ Polymer
- ☐ Polymer Degradation and Stability
- ☐ Supramolecular Chemistry
- ☐ Synlett
- ☐ Synthesis
- ☐ Tetrahedron
- ☐ Tetrahedron Letters
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

4.6 a. Are the following laboratory facilities **adequate** for your instructional program?

Safety showers	Yes ☒	No ☐	Hoods	Yes ☒	No ☐
Eye washers	Yes ☒	No ☐	Ventilation	Yes ☒	No ☐
Fire extinguishers	Yes ☒	No ☐			

b. If no is checked for any item above, please explain.

4.7 a.

	Yes	No
Does the department/university have established safety rules?	☒	☐
Does the department/university have emergency reporting procedures?	☒	☐
Does your department have a written chemical hygiene plan?	☒	☐
Are there adequate facilities and arrangements for disposal of chemical waste?	☒	☐
Are safety information and reference materials (e.g., MSDS, SDS, SOPs) readily available to all students and faculty?	☒	☐
Is appropriate personal protective equipment available and used by all students and faculty?	☒	☐

b. If no is checked for any of the above, please explain.

c. Does the chemistry department or program have a safety committee or safety officer?

Yes ☒ No ☐

If a safety committee exists, how often does it meet?

2 times per semester, or more frequently as needed

Section 5: Curriculum

5.1 a. Are all foundation courses taught annually? Yes ☒ No ☐

b. If no is checked above, indicate the foundation courses that are **not** taught annually.

c. If all of the courses required for student certification are not taught annually, describe how students can complete the requirements for a certified chemistry degree within four years.

Some of the advanced courses are taught on a regular alternate year schedule that is available in advance to both students and faculty advisers. The scheduled meeting times are cooredinated with other departments to prevent/minimize scheduling conflicts.

d. Are at least four semester-long (or six quarter-long) in-depth courses taught annually, exclusive of research? Yes ☒ No ☐

5.2 Refer to section 5.6 of the ACS Guidelines for the definition of degree tracks and **list only those degree tracks that lead to an ACS-certified bachelor's degree** in chemistry or related field.

Track 1 BS Chemistry (ACS)
Track 2 BS Biochemistry (ACS)
Track 3 BS Forensic Chemisty (ACS)
Track 4
Track 5
Track 6
Track 7

5. 3 Please report the number of hours in each course listed below in Table 5.1 that reflects supervised, hands-on lab experience.

CHEM 115 has a total of 28 supervised laboratory hours

Complete Tables 5.1 – 5.4 only for those courses in degree tracks that may lead to an ACS-certified bachelor's degree.

Table 5.1 – Introductory Course Work

List all introductory chemistry course work students may use to prepare for the foundation course work listed in Table 5.2. Do not include courses listed in Table 5.2 and 5.3 or courses that are not used for ACS certification purposes. Enter only one course per row.

Dept. & Course Number	Course Title	Total Hours[1]		Textbook and Author	Credit Hours	Tracks[2]						
		Class	Lab			1	2	3	4	5	6	7
CHEM 115	General Chemistry	58	28	Chemistry and Chemical Reactivity, Hybrid Edition by Kotz	5	R	R	R				

1. Total Hours refers to the total contact hours per term. Do not record credit hours or contact hours per week in this column.
2. Using the drop-down menu, indicate whether a course is required (R) or one of two or more alternatives (A) that students may choose for each degree track.

Table 5.2 – Foundation Course Work

List below all course work students may use to satisfy the FOUNDATION requirements in the sequence suggested for ACS certification. Do not include courses listed in Tables 5.1 and 5.3 or courses that are not used for ACS certification purposes. Refer to Section 5.3 of the ACS Guidelines for the definition of a foundation course. Enter only one course per row.

Dept. & Course Number	Course Title	Total Hours[1]		Textbook and Author	CH[2]	Subdisciplinary % Breakdown[3]					Tracks[4]						
		Class	Lab			A	B	I	O	P	1	2	3	4	5	6	7
CHEM 116	General Chemistry II-Intro to Physical Chemistry	58	42	Chemistry and Chemical Reactivity, Hybrid Edition by Kotz	5			10		90	R	R	R	_	_	_	_
CHEM 225	Organic Chemistry I	44	42	Organic Chemistry, David Klein, 1st Edition	4				100		R	R	R	_	_	_	_
CHEM 231	Quantitative Analysis	44	42	Quantitative Chemical Analysis by D. C. Harris	4	100					R	R	R	_	_	_	_
CHEM 261	Inorganic Chemistry	44	42	Descriptive Inorganic Chemistry. Rayner-Canham and Overton	4			100			R	R	R	_	_	_	_
CHEM 351	Introductory Biochemistry	44	42	Lippincott's Illustrated Review: Biochemistry (Harvey and Ferrier) 5th	4		100				R	R	R	_	_	_	_
											_	_	_	_	_	_	_
											_	_	_	_	_	_	_
											_	_	_	_	_	_	_
											_	_	_	_	_	_	_
											_	_	_	_	_	_	_

1. Total hours refers to the total contact hours per term including the final. Do not record credit hours or contact hours per week in this column.
2. Indicate the credit hours (CH) for each course listed.
3. State the approximate percentage of each subdiscipline found in each course (analytical chemistry (A), biochemistry (B), inorganic chemistry (I), organic chemistry (O), and physical chemistry (P)). The percentage coverage must add up to 100% for each course. For example, Biophysics I might be 40% biochemistry and 60% physical or Organic Chemistry I might be 100% organic.
4. Using the drop-down menu, indicate whether a course is required (R) or one of two or more alternatives (A) that students may choose to meet the foundation requirements for each degree track.

Table 5.2 – Foundation Course Work (continued)

Dept. & Course Number	Course Title	Total Hours[1]		Textbook and Author	CH[2]	Subdisciplinary % Breakdown[3]					Tracks[4]						
		Class	Lab			A	B	I	O	P	1	2	3	4	5	6	7

1. Total hours refers to the total contact hours per term including the final. Do not record credit hours or contact hours per week in this column.
2. Indicate the credit hours (CH) for each course listed.
3. State the approximate percentage of each subdiscipline found in each course (analytical chemistry (A), biochemistry (B), inorganic chemistry (I), organic chemistry (O), and physical chemistry (P)). The percentage coverage must add up to 100% for each course. For example, Biophysics I might be 40% biochemistry and 60% physical or Organic Chemistry I might be 100% organic.
4. Using the drop-down menu, indicate whether a course is required (R) or one of two or more alternatives (A) that students may choose to meet the foundation requirements for each degree track.

5.4 If any courses are listed as alternative courses in Table 5.2, please explain how students satisfy the foundation requirements for certification for each degree track. List the names and course numbers. If a course is listed here, ensure it is also entered in Table 5.2.

Table 5.3 – In-Depth Course Work

List the in-depth course work used for ACS certification. Do not include courses listed previously in Tables 5.1 and 5.2. Refer to Section 5.4 of the ACS Guidelines for the definition of an in-depth course. Enter only one course per row.

Dept. & Course Number	Course Title	Total Hours[1]		Textbook and Author	Foundation Prerequisite Course #	CH[2]	Tracks[4]						
		Class	Lab				1	2	3	4	5	6	7
CHEM 226	Organic Chemisty II	44	42	Organic Chemistry, David Klein, 1st Edition	CHEM225	4	R	R	R	_	_	_	_
CHEM 310	Applied Spectroscopy	44	42	Spectrometric Identification of Organic Compounds" (7th ed), R.M. Silverstein, et. al. 2005.	CHEM226 CHEM261	4	E	E	E	_	_	_	_
CHEM 332	Instrumental Analysis	44	42	Undergraduate Instrumental Analysis by J.W. Robinson, E. M. Skelly-Frame, G.M. Frame II, 6th	CHEM 231	4	R	R	R	_	_	_	_
CHEM 341	Environmental Chemistry	44	42	Environmental Chemistry 8th ed S. Manahan	CHEM 231 CHEM 225	4	E	E	E	_	_	_	_
CHEM 353	Introductory Toxicology	44		Casarett & Doull's Toxicology: The Basic Science of Poisons by Klaassen	CHEM 225 CHEM 351	3	E	R	R	_	_	_	_
CHEM 361	Physical Chemistry I	58		Physical Chemistry.Silbey, Alberty, Bawendi, Wiley,4/E 2005	CHEM 116	4	R	E	E	_	_	_	_
CHEM 362	Physical Chemistry II	44		Physical Chemistry. Silbey, Alberty, Bawendy, Wiley,4/E	CHEM 116	3	R	E	E	_	_	_	_
CHEM 363	Physical Chemistry Lab		42	None	CHEM 116	1	R	R	E	_	_	_	_
CHEM 445	Forensic Science	44	42	Forensic Chemistry Handbook by Kobilinsky	CHEM 231 CHEM 332	4	E	E	R	_	_	_	_
CHEM 452	Adv Bochemical and Molecular Tec	28	56	Lippincott's Illustrated Review: Biochemistry (Harvey and Ferrier) 5th Ed	CHEM 351	4	E	R	E	_	_	_	_
CHEM 461	Adv Inorganic Chem	44		Inorganic Chemistry. Miessler, Tarr. 5th Ed, Pearson Education, 2014	CHEM 231 CHEM 225 CHEM 261	3	E	E	E	_	_	_	_

1. Total hours refers to the total contact hours per term including the final. Do not record credit hours or contact hours per week in this column.
2. Indicate the credit hours (CH) for each course listed.
3. Indicate whether a course is required (R) or elective (E) for each track using the drop-down menu.

Table 5.3 – In-Depth Course Work (continued)

Dept. & Course Number	Course Title	Total Hours[1]		Textbook and Author	Foundation Prerequisite Course #	CH[2]	Tracks[4]						
		Class	Lab				1	2	3	4	5	6	7
CHEM 462	Adv Inorganic Chem Lab		42	None	CHEM 261	1	E	E	E				
CHEM 495	Senior Project (undergraduate research)		84	None	N/A	2	R	R	R				

1. Total hours refers to the total contact hours per term including the final. Do not record credit hours or contact hours per week in this column.
2. Indicate the credit hours (CH) for each course listed.
3. Indicate whether a course is required (R) or elective (E) for each track using the drop-down menu.

Table 5.4 – Physics and Mathematics Courses

List the physics and mathematics course work required for ACS certification. Refer to Section 5.7 of the ACS Guidelines. Enter only one course per row.

Dept. & Course Number	Course Title	Total Hours[1]		Department	Credit Hours	Tracks[2]						
		Class	Lab			1	2	3	4	5	6	7
MATH 112	Calculus for Business and Life Sciences	58		Math	4	E		R				
MATH 151	Calculus I	58		Math	4	E	R					
Math 152	Calculus II	58		Math	4	E	R					
Math 305	Linear Algebra	44		Math	2	E		R				
ENGR 245	Calculus Applications for Technology	28	28	Engineering	3	E		R				
PHYS 221	Principles of Physics I	44	28	Physical Sciences	4	E		E				
Phys 222	Principles of Physics II	44	28	Physical Sciences	4	E		E				
PHYS 231	Applied Physics for Engineers and Scientists I	44	28	Physical Sciences	4	E	R	E				
PHYS 232	Applied Physics for Engineers and Scientists II	44	28	Physical Sciences	4	E	R	E				

1. Total hours refers to the total contact hours per term including the final. Do not record credit hours or contact hours per week in this column.
2. Indicate whether a course is required (R) or elective (E) for each track using the drop-down menu.

5.5 How do your ACS-certified graduates **in each degree track** meet the in-depth course requirements? List the names, course numbers, and indicate if required or elective. If a course is listed here, ensure it is also entered in Table 5.3. Where a student may choose among two or more courses, clarify the options, and how many courses are required for certification.

BS Chemistry - Required: CHEM 226 Organic Chemistry II (Organic), CHEM 332 Instrumental Analysis (Analytical), CHEM 361 Physical Chemistry I (Physical), CHEM 362 Physical Chemistry II (Physical), CHEM Electives at the 300 level or higher (11 credits)

BS Biochemistry - Required: CHEM 226 Organic Chemsitry II (Organic), CHEM 332 Instrumental Analysis (Analytical), CHEM 452 Advanced Biochemical Mol Tech (Biochemistry), 4 cr CHEM electives (either CHEM 361 or 362 for certification, Physical)

BS Forensic Chemistry - Required: CHEM 226 Organic Chemistry II (Organic), CHEM 332 Instrumental Ananlysis (Analytical), 3 cr CHEM Electives (must be either CHEM 361 or 362 for certification, Physical)

5.6 How do ACS-certified graduates **in each degree track** meet the laboratory requirement of 400 hours? Include the subdisciplinary area (ABIOP) covered by each course, the course name, the course number, the number of lab hours devoted to each area, and indicate whether courses are required or elective. Please record the total number of labs hours for the courses listed in each track. Do not include lab hours from general or introductory lab courses. If a course is listed here, ensure it is also entered in Table 5.2 or 5.3.

Example: Organic Chemistry II (CH 232), Organic 45 hours

BS Chemistry, Required - Intro to Physical Chemistry (CHEM116), Physical 42 hrs; Physical Chemistry Lab (CHEM363), Physical 42 hrs; Organic Chemistry I (CHEM 225), 42 hrs; Organic Chemistry II (CHEM 226), Organic 42 hrs; Quantitative Analysis (CHEM 231); Analytical 42 hrs, Instrumental Analysis (CHEM 332), Analytical 42 hrs; Introductory Biochemistry (CHEM 351), Biochemistry 42 hrs; Inorganic Chemistry (CHEM 261); 42 hrs; Senior Project (CHEM 495), 84 hrs. Chemistry Electives also provide additional laboratory hours (minimum 420 hrs.)

BS Biochemistry, Required - Intro to Physical Chemistry (CHEM116), Physical 42 hrs; Physical Chemistry Lab (CHEM363), Physical 42 hrs; Organic Chemistry I (CHEM 225), 42 hrs; Organic Chemistry II (CHEM 226), Organic 42 hrs; Quantitative Analysis (CHEM 231); Analytical 42 hrs, Instrumental Analysis (CHEM 332),Analytical 42 hrs; Introductory Biochemistry (CHEM 351), Biochemistry 42 hrs; Adv Biochem (CHEM 452), 56 hrs; Inorganic Chemistry (CHEM 261); 42 hrs; Senior Project (CHEM 495) 84 hrs (minumum 476 hrs.)

BS Forensic Chemistry - Intro to Physical Chemistry (CHEM116), Physical 42 hrs; Organic Chemistry I (CHEM 225), 42 hrs; Organic Chemistry II (CHEM 226), Organic 42 hrs; Quantitative Analysis (CHEM 231), Analytical 42 hrs; Instrumental Analysis (CHEM 332) Analytical, 42 hrs; Introductory Biochemistry (CHEM 351), Biochemistry 42 hrs, Inorganic Chemistry (CHEM 261), 42 hrs; Adv Biochemistry (CHEM 452), Biochemistry 56 hrs OR Applied Spectroscopy Analytical, 42 hrs; Senior Project (CHEM 495) 84 hrs. (minimum 420 hrs)

5.7 Describe the computational chemistry facilities and software (e.g., Gaussian) that students use in their course work and research.

A workstation with Spartan '14, and 10 workstations with Spartan Student are available in the instructional computer lab (CRW 107). One additional student workstation with Spartan Student and Titan is available in the introductory chemistry lab (CRW334).

5.8 How do students gain hands-on experience using chemical instrumentation?

Students gain hands on experience with instrumentation throughout the curriculum in both coursework and research. For instance, students in Orgainic Chemistry I (CHEM 225) use NMR and FTIR throughout the semester to characterize their products. Students in Instrumental Analysis (CHEM 332)gain experience with a range of analytical techniques, including instrumentation in each of the five areas of Optical Molecular Spectroscopy, Optical Atomic Spectroscopy, Mass Spectrometry, Chromatography, and Electrochemistry. In dpeth courses with laboratories provide additional hands on opportunities to use instrumentation. For instance, NMR and FTIR are also heavily used in Organic Chemisty II (CHEM 226), and Applied Spectroscopy (CHEM 310). Applied in depth courses such as Environmental Chemistry (CHEM 341) and Forensic Science (CHEM 445)have a strong analytical focus, and make use of a wide range of instrumental methods in the laboratory.

5.9 a. Are any classes required for student certification taught wholly online? Yes ☐ No ☒

b. If you are having problems or concerns with the arrangements for these courses, please describe them.

Section 6: Undergraduate Research

6.1 Undergraduate Research

a. Do you use undergraduate research to fulfill certification requirements for lab hours?

Yes ☒ No ☐

b. Do you use undergraduate research to fulfill certification requirements for in-depth course work?

Yes ☒ No ☐

If yes to either question above, is a comprehensive written report required? Yes ☒ No ☐
If no, go to Item 6.3

6.2 Submit a sample of the comprehensive student research reports or theses representative of multiple disciplines and faculty, with the grade the student received indicated on each report. Also indicate on each report the number of terms (semesters or quarters) and actual student hours per term of research covered by the report.

Number submitted 4 (3-5 reports, 5 maximum)

6.3 Report on the participation in undergraduate research during the last five years.

a. Number of undergraduate majors (all degrees offered by your program) who participated in a research experience 45

b. Number of chemistry faculty who were regularly involved in research with undergraduates 7

6.4 If undergraduate research done outside of your institution is used to satisfy certification requirements, are students required to submit a comprehensive written research report that a faculty member at your institution evaluates and approves?

Yes ☒ No ☐ Not applicable ☐

6.5 How are students provided with experiment-specific safety education and training?

In coursework, student receive safety instruction from the instructor prior to beginning each experiment. Students also prepare research proposals in Junior Seminar (CHEM 395) which include sections on experimental methods and laboratory safety. These proposals are reviewed by the department chair and faculty supervisor prior to approval. Students must complete an appropriate safety training program with the laboratory manager, then receive additional safety instruction from the faculty supervisor.

Section 7: Student Skills

7.1 Describe the experiences that develop student professional skills in problem-solving, oral/written/presented communication, teamwork, and ethics (responsible scientific conduct).

While each of these skills is developed in multiple courses throughout the curriculum, problem solving, communication, and ethics are most thoroughly focused on in the CHEM 395, CHEM 495, and CHEM 499 research sequence. In CHEM 395, a research proposal is developed, presented, and revised based on feedback from faculty and other students. Experimental design, and research ethics are also addressed in this course. IN CHEM 495, research is conducted under the close supervision of a faculty mentor. In CHEM 499, The results of the research are presented publicly through a poster symposium, an oral presentation, and a written paper. Teamwork and team problem solving are developed throughout the curriculum through group exercises both in classes and in laboratories.

7.2 Describe how your students gain experience with the effective retrieval and use of chemical literature, data management, archiving, and record-keeping.

Retrieval and use of the chemical literature is taught early in the curriculum beginning with CHEM 225 (typicall fall semester sophomore year). Record keeping is similarly taught thoughout the curriculum through the instruction on and use of proper laboratory notebooks. While laboratory notebooks for coursework are typically not archived, laboratory notebooks, electronic data, and final products for research projects are archived indefinitely (electronic files are backed up on an external server). Additional specific instruction on data management etc. is provided during the undergraduate research sequence.

7.3 Describe how your program conveys safe lab practices and safety risk assessment to students throughout their undergraduate experience. When and where is the first safety instruction delivered?

Safety is taught throughout the curriculum beginning with CHEM 115. At the beginning of each course, a standardized laboratory safety handout is distributed to the students, and safe practices are described by the instructor. Students then sign a form acknowledging they have received general laboroatory safety instruction and the signatures are archived. Instructors also provide additional safety instruction at the beginning of each lab on potential hazards of that days experiment. Students conducting research and student employees must watch a series of videos annually, and pass a safety quiz in addition to receiving specific safety training from the faculty mentor or supervisor.

7.4 How are all of the student skills describe in Items 7.1, 7.2, and 7.3 assessed?

These skills are assessed both qualitatively and quantitatively through a variety of techniques, but the most effective assessment technique involvesobservation and quantitative assessment of students engaging in undergraduate research. Use of the chemical literature is assessed in CHEM 395 Jumior Seminar. During CHEM 495 Senior Project, individual faculty members assess student progress as the research is being executed (including safety, with feedback from routine safety inspections). In CHEM 499 (Senior Thesis) the faculty as a whole provide feedback on the oral and poster presentations, whicle the written paper is evaluated by the faculty mentor and the course instructor.

Section 8: Program Self-Evaluation

8.1 Describe the program self-evaluation activities that your department has undertaken over the past five years. Provide quantitative information, if available.

Lake Superior State University requires comprehensive program review to occur on a regular 5 year rotating schedule. The BS Chemistry & Biochemistry (including secondary ed) degrees were reviewed during the 2013-2014 academic year, while the Forensic Chemistry was reviewed during the 2014-2015 avademic year. The program review documents enrollment trends, staffing levels, graduate placement, student satisfaction, the adequacy of facilities, the acheivement of program learning outcomes, and course level assessment. At LSSU, assessment data for course level and program level learning outcomes is archived in TracDat software. Many courses use ACS exams to evaluate student learning. For example, The past four semesters of general chemistry had class averages of 38.5, 35.7, 37.8, and 40.7 on the 1997 First Semester Exam (average 39.4). Discussions of curriculum items Each fall, the Chemistry Faculty meets to prioritize facilities and instrumentation aquisition and potential funding sources (including submissions to NSF-MRI). LSSU has a fund available to the sciences at the Deans level for replacement of equipment and Instrumentation, and these funds have been used to acquire several instruments designated as priorities by the faculty including a new electrochemical workstation, MP-AES, and Ion Chromatograph in the last two years. Currently, the department is investigating the possibility (and practicality) of acquiring cryogenic NMR to better support research and instruction in Organic Chemistry.

8.2 Describe how the results of your department's self-evaluations have been used to improve student learning, student skills, exploration of alternate pedagogies, and the effectiveness of the chemistry program.

Several changes have resulted from the self evaluation process. We have acquired several instruments over the past five years to better support student learning, undergraduate research, and faculty scholarship. We also recently expanded our computational chemistry facilities. We are currently working on curriculum changes to improve the physical chemistry sequesnce, increase student use of computational chemistry software, increase coverage of polymer chemistry, and exapnd the series of seminar courses such that students would take a seminar course in each year of study. The changes to the seminar sequence we expect to particularly improve development of student skills in use of the chemical literature, scientific writing, and career development. We are also working with the English department to explore the possibility of offering specialized course sections of second semester english compsition for STEM majors, with the goal of formally intruducing scientific writing in the freshman year. Other changes include the improvement of safety instruction, including the requirement that students working on undergraduate research projects undergo a more rigorous safety training process than in the past.

Final Comments

Please comment on (in as much detail as you wish) changes in the last five years in faculty, diversity initiatives, professional development, support personnel, facilities, capital equipment, curriculum, and any other items related to your program that you believe would be of interest to CPT. We are especially interested in any new programs you are about to undertake. Use additional sheets, if necessary. Please do not include actual self-evaluation documents or reports.

Over the past five years, we have added an additional full time staff memeber for lab prep and instrument maintenance and repair. We requested campus wide access to SciFinder, and received support from the administration to implement it in 2012. We requested, and were granted, an additional budget for instrument maintenance and replacement through the Deans Fund which totals ~$120,000 annually for the sciences. We added new instrumentation in electrochemistry (electrochemical workstation consiststing of a potentiostat, cell stand, various electrodes, and software) in 2014, which has been incorporated into the instrumental analysis course and undergraduate research. We are also currently investigating the addition of a cryogenic NMR. Additionally, we are pursuing severalcurriculum improvements as described in section 8.2. With regard to facilities, we were granted additional laboratory space in 2011, to support our SEM and to support additional faculty research. In 2014, the university increased annual professional development funds from $800 to $1000, and has also begun redistributing a portion of grant indirect cost revenues to the PI's and the Departments as additional professional development funds.

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Cathy A. Nelson, *Secretary* (202) 872-4589

25 August 2016

Dr. Derek Wright, Chair
School of Physical Sciences
Lake Superior State University
650 West Easterday Avenue
Sault Ste. Marie, MI 49783

Dear Dr. Wright:

The Committee on Professional Training reviewed the department's 2015 periodic report. Based on the information available, the Committee concluded that the chemistry program meets all of the requirements in the ACS Guidelines and agreed to **continue approval.**

The Committee commended the administration for providing the department with an excellent range of improvements, including the additional staff and lab space, the substantial funding for instrument maintenance and repair, and the increased funds for faculty development. The number of faculty publications is very impressive for a school of this size. The curricular revision activities are also noteworthy. The biochemistry classroom and lab courses are excellent, and the equipment is state-of-the-art. The quality of the student research reports was characterized as very good.

The Committee made the following suggestion for the continued development of the chemistry program.

Tracking graduates. According to Item 1.4, the career paths were unknown for one-fourth of the graduates during the five years covered in the report. The Committee encourages the department to improve efforts to track the outcomes of students following graduation. Strong connections to alumni are an invaluable source of feedback for program improvement, employment opportunities for new graduates, and financial assistance.

The program's next periodic report will be due in **2021**. Please do not hesitate to contact me if you have any questions about the information in this letter or the expectations for ACS-approved programs.

Sincerely,

Cathy A. Nelson

Cathy A. Nelson
Secretary
Committee on Professional Training

CAN/dth/daa

c: Dr. Thomas C. Pleger, President

ACS
Chemistry for Life®

American Chemical Society

COMMITTEE ON PROFESSIONAL TRAINING
1155 Sixteenth Street, N.W.
Washington, DC 20036

Fax: (202) 872-6066
Email: cpt@acs.org
Web: www.acs.org/cpt

Cathy A. Nelson, *Secretary* (202) 872-4589

25 August 2016

Dr. Derek Wright, Chair
School of Physical Sciences
Lake Superior State University
650 West Easterday Avenue
Sault Ste. Marie, MI 49783

Dear Dr. Wright:

The Committee on Professional Training reviewed the department's 2015 periodic report. Based on the information available, the Committee concluded that the chemistry program meets all of the requirements in the ACS Guidelines and agreed to **continue approval.**

The Committee commended the administration for providing the department with an excellent range of improvements, including the additional staff and lab space, the substantial funding for instrument maintenance and repair, and the increased funds for faculty development. The number of faculty publications is very impressive for a school of this size. The curricular revision activities are also noteworthy. The biochemistry classroom and lab courses are excellent, and the equipment is state-of-the-art. The quality of the student research reports was characterized as very good.

The Committee made the following suggestion for the continued development of the chemistry program.

Tracking graduates. According to Item 1.4, the career paths were unknown for one-fourth of the graduates during the five years covered in the report. The Committee encourages the department to improve efforts to track the outcomes of students following graduation. Strong connections to alumni are an invaluable source of feedback for program improvement, employment opportunities for new graduates, and financial assistance.

The program's next periodic report will be due in **2021**. Please do not hesitate to contact me if you have any questions about the information in this letter or the expectations for ACS-approved programs.

Sincerely,

Cathy A. Nelson

Cathy A. Nelson
Secretary
Committee on Professional Training

CAN/dth/daa

c: Dr. Thomas C. Pleger, President

ABET, Inc.
111 Market Place, Suite 1050
Baltimore, MD 21202
Phone: +1.410.347.7700
Fax: +1.410.625.2238
www.abet.org
accreditation@abet.org

Applied Science Accreditation Commission
Computing Accreditation Commission
Engineering Accreditation Commission
Technology Accreditation Commission

August 03, 2011

Ron DeLap
Dean
Lake Superior State University
650 West Easterday
Sault Ste Marie, MI 49783

Dear Dr. DeLap :

Technology Accreditation Commission (TAC) of ABET recently held its 2011 Summer Meeting to act on the program evaluations conducted during 2010-2011. Each evaluation was summarized in a report to the Commission and was considered by the full Commission before a vote was taken on the accreditation action. The results of the evaluation for Lake Superior State University are included in the enclosed Summary of Accreditation Actions. The Final Statement to your institution that discusses the findings on which each action was based is also enclosed.

The policy of ABET is to grant accreditation for a limited number of years, not to exceed six, in all cases. The period of accreditation is not an indication of program quality. Any restriction of the period of accreditation is based upon conditions indicating that compliance with the applicable accreditation criteria must be strengthened. Continuation of accreditation beyond the time specified requires a reevaluation of the program at the request of the institution as noted in the accreditation action. ABET policy prohibits public disclosure of the period for which a program is accredited. For further guidance concerning the public release of accreditation information, please refer to Section II.L. of the 2010-2011 Accreditation Policy and Procedure Manual (available at www.abet.org).

A list of accredited programs is published annually by ABET. Information about ABET accredited programs at your institution will be listed in the forthcoming ABET Accreditation Yearbook and on the ABET web site (www.abet.org).

It is the obligation of the officer responsible for ABET accredited programs at your institution to notify ABET of any significant changes in program title, personnel, curriculum, or other factors which could affect the accreditation status of a program during the period of accreditation.

Please note that appeals are allowed only in the case of Not to Accredit actions. Also, such appeals may be based only on the conditions stated in Section II.G. of the 2010-2011 Accreditation Policy and Procedure Manual (available at www.abet.org).

Sincerely,

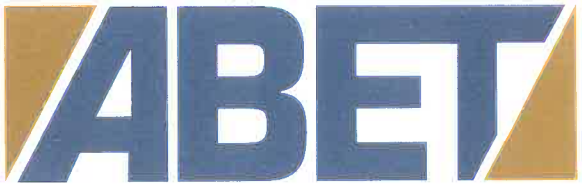
Warren R Hill

Warren R. Hill, Chair
Technology Accreditation Commission

Enclosure: Summary of Accreditation Action
Final Statement

cc: Tony McLain, President

David L. Ingram, Visit Team Chair



Technology Accreditation Commission

Final Statement of Accreditation
to
Lake Superior State University
Sault Ste. Marie, MI

2010-11 Accreditation Cycle

Leadership and Quality Assurance in Applied Science, Computing, Engineering, and Technology Education

ABET, Inc.

TECHNOLOGY ACCREDITATION COMMISSION

FINAL GENERAL REVIEW STATEMENT

on

LAKE SUPERIOR STATE UNIVERSITY

Sault Ste. Marie, Michigan

Dates of Visit:

October 10 – 12, 2010

The statement that follows consists of two parts: the first addresses the overall institution and its engineering technology operation, and the second addresses the individual engineering technology programs. Accreditations actions taken by TAC of ABET will be based upon the findings summarized in this statement and will depend on the range of compliance or non-compliance with ABET criteria, policies, and procedures. The range can be construed from the following definitions for findings:

Deficiency: A Deficiency indicates that a criterion, policy, or procedure is not satisfied. Therefore, the program is not in compliance with the criterion, policy, or procedure.

Weakness: A Weakness indicates that a program lacks the strength of compliance with a criterion, policy, or procedure to ensure that the quality of the program will not be compromised. Therefore, remedial action is required to strengthen compliance with the criterion, policy, or procedure prior to the next evaluation.

Concern: A Concern indicates that a program currently satisfies a criterion, policy, or procedure; however, the potential exists for the situation to change such that the criterion, policy, or procedure may not be satisfied.

Observation: An Observation is a comment or suggestion which does not relate directly to the accreditation action but is offered to assist the institution in its continuing efforts to improve its programs.

LAKE SUPERIOR STATE UNIVERSITY

Sault Ste. Marie, Michigan

INSTITUTIONAL FACTORS AFFECTING

THE ENGINEERING TECHNOLOGY UNIT

Introduction

The Technology Accreditation Commission of ABET, Inc. (TAC of ABET) has evaluated the baccalaureate degree program in Manufacturing Engineering Technology of Lake Superior State University. The visit findings were evaluated using the 2010-11 ABET *Criteria for Accrediting Engineering Technology Programs* and the 2010-11 ABET *Accreditation Policy and Procedure Manual.*

Lake Superior State University is a public college that been accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools since 1968. The Manufacturing Engineering Technology program leading to the Bachelor of Science degree was initially accredited by TAC of ABET in 1987 and has held continuous accreditation since that time. This program has been submitted for reaccreditation evaluation.

PROGRAM EVALUATION

MANUFACTURING ENGINEERING TECHNOLOGY

Baccalaureate Degree

Introduction

The Manufacturing Engineering Technology program seeks to prepare engineering technologists with an appropriate blend of academic and practical skills needed to perform the professional tasks required of them as graduates. The goal of the program is to have its students receive engineering technology training adequate to meet the needs of their future employers. The program focuses on manufacturing support through general manufacturing, robotics, and automation. The program's educational objectives are:

- Experienced graduates of the Manufacturing Engineering Technology program will have successfully demonstrated professional application of technical skills and engineering judgment to solve problems in their professional subject to technical, practical, and societal constraints.
- Experienced graduates of the Manufacturing Engineering Technology program will have set professional goals, experienced professional growth, and are engaged in ongoing professional development and learning activities. They will appreciate the need for life-long learning in a constantly changing world and be capable self-learners.

The Program Criteria for Manufacturing Engineering Technology and Similarly Named Programs as published in the 2010-11 ABET criteria document also were used to evaluate this program. Findings in meeting the provisions of ABET criteria and policies are described below.

Program Weakness

1. Criterion: Criterion 4. Continuous Improvement states, "The program must use a documented process incorporating relevant data to regularly assess its program educational objectives and program outcomes and evaluate the extent to which they are being met. The results of these evaluations of program educational objectives and program outcomes must be used to effect continuous improvement of the program through a documented plan." The program currently conducts assessment of program outcomes every semester, and the program faculty meets to discuss the results of that assessment. However, there is no documented plan defining assessment and evaluation processes or defining the performance levels below which action for improvement is necessary. Faculty members did not seem to have a clear understanding of the assessment process and were unaware of any documentation to enable that understanding. The Self Study Report noted that the program had experienced difficulties in obtaining significant data from external sources. As a result, efforts and decisions to improve the program are very subjective. The program currently holds a faculty meeting every semester to consider program improvements, but there is no well-defined or well-documented plan of approach. Therefore, it is difficult for the program to consistently evaluate the results from assessment, to determine when improvement is necessary, and to determine what actions for improvement should be taken. The program's assessment, evaluation, and improvement plan must show how the results of assessment are used to effect continuous improvement, and all faculty members need to clearly understand the plan. Assessment data from external sources such as employers of graduates are crucial to insure the assessment process is meaningful and statistically significant in guiding program improvements. Therefore, the program must demonstrate (1) that it is using a documented process incorporating relevant data to regularly

assess its program educational objectives and program outcomes and to evaluate the extent to which they are being met, and (2) that the results of these evaluations of program educational objectives and program outcomes are being used to effect continuous improvement of the program through a documented plan.

Due Process Response: The program responded that its two newest faculty members may not completely understand the assessment system, and all faculty members are to attend training sessions in January 2011. The program also stated that the visiting TAC of ABET team was provided with an 85-page document and a notebook with 66 pages of additional documents of details regarding the continuous improvement process. The notebook contained the following:

- program evaluation schedule (2007-2013),
- course evaluation schedule (2008-2011),
- table of assessment responsibilities with the task, requirements,
- due dates, year done, and individual or group responsible for the task,
- PEO Assessment Report (2006-2009),
- Manufacturing Engineering Technology Program Outcome Objective 1 Assessment Report (2007-2008),
- Manufacturing Engineering Technology Program Outcome Objective 2 Assessment Report (2009-2010),
- School – Program Outcome Objective 1 Assessment Report (2007-2008), and
- School – Program Outcome Objective 1 Assessment Report (2009-2010).

Each of the four Program Objective Assessment Reports contained a summary, statement of objective, and the status of established indicators. The documents in the notebook showed that

the program has a documented plan to assess program educational objectives and program outcomes. The status section in these documents shows that the results of these evaluations are being used to improve the program.

Status after Due Process: This Weakness is resolved.

Program Concern

1. Criterion: Criterion 7. Facilities states, "Adequate facilities and financial support must be provided for each program in the form of: ... b. laboratory equipment characteristic of that encountered in industry and practice served by the program ..." The program provides its students with exposure to a wide array of technical equipment, computing equipment, and equipment catalogs. However, some of the equipment is dated and may not reflect what graduates will encounter in industry and practice. While the current range of equipment available for student instruction may be adequate, it is important that students be prepared for professional practice through exposure to the type of equipment they will likely encounter in industry. This finding remains a Concern until the program demonstrates that its laboratory equipment is characteristic of that encountered in the industry and practice being served by the program.

Due Process Response: The program responded that the department will propose increasing student fees in the fall of 2011 to fund laboratory upgrades over time. The proposal will go to the Board of Trustees in January of 2011. TAC of ABET notes the plan to address this issue in the long term but also notes the need to insure that current students are using modern equipment.

Status after Due Process: The finding remains a Concern until the program demonstrates that its

laboratory equipment is characteristic of that encountered in the industry and practice being served by the program.

Program Observations

1. The department chair and program coordinator are given one credit hour of reduction in teaching load per semester to administer the program. While this arrangement may currently suffice, it appears to be a small reduction in comparison to the additional administrative responsibilities. It is suggested that the teaching and administrative responsibilities of the department chair and program coordinator be monitored to insure that adequate time is available for each component of their workloads.

Due Process Response: The program responded that a campus wide policy is currently being developed for release time for assessment.

2. The textbook being used in EGRS 480 Manufacturing Automation has a publication date of 1987. It is suggested that the program review its textbooks to insure that all texts are technologically up-to-date.

Due Process Response: The program responded that it is considering replacing this textbook with a newer version and further noted that specific pages from an updated textbook on the same material are currently being provided to the students through an agreement from the publisher.

ABET, Inc.

Technology Accreditation Commission

Summary of Accreditation Actions
for the
2010-2011 Accreditation Cycle

Lake Superior State University
Sault Ste. Marie, MI

Manufacturing Engineering Technology (BS)

Accredit to September 30, 2017. A request to ABET by January 31, 2016 will be required to initiate a reaccreditation evaluation visit. In preparation for the visit, a Self-Study Report must be submitted to ABET by July 01, 2016. The reaccreditation evaluation will be a comprehensive general review.

ABET, Inc.
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Applied Science Accreditation Commission
Computing Accreditation Commission
Engineering Accreditation Commission
Technology Accreditation Commission

August 03, 2011

Tony McLain
President
Lake Superior State University
650 West Easterday
Sault Ste Marie, MI 49783

Dear Dr. McLain :

I am pleased to transmit to you the findings of the Technology Accreditation Commission (TAC) of ABET with respect to the evaluation conducted for Lake Superior State University during 2010-2011. Each of ABET's Commissions is fully authorized to take the actions described in the accompanying letter under the policies of the ABET Board of Directors.

We are pleased that your institution has elected to participate in this accreditation process. This process, which is conducted by approximately 1,500 ABET volunteers from the professional community, is designed to advance and assure the quality of professional education. We look forward to our continuing shared efforts toward this common goal.

Sincerely,

Phillip E. Borrowman

Phillip E. Borrowman
President

Enclosure: Commission letter and attachments

Council for the Accreditation of Educator Preparation

2010 Massachusetts Avenue, NW | Suite 500
Washington, DC 20036
tel: 202.223.0077 | fax: 202.296.6620
www.caepnet.org

October 28, 2013

Dr. Donna Fiebelkorn, Assistant Dean
School of Education
Lake Superior State University
650 W. Esterday Avenue
Sault Ste. Marie, MI 49783

Dear Dr. Fiebelkorn:

I am happy to confirm that the *Inquiry Brief* Commission of the Council for the Accreditation of Educator Preparation (CAEP) concluded at its meeting on October 4, 2013, in Philadelphia, PA that the evidence presented in your *Inquiry Brief Proposal*, as verified by the audit and evaluated by the Initial Review Panel, merits TEAC Initial Accreditation status.

The *Inquiry Brief* Commission unanimously passed the following motion:

1. The Teacher Education Program[i] submitted by Lake Superior State University is granted **Initial Accreditation (5 years) with one stipulation.**

2. **Stipulation in *Quality Principle 3.2:***
   There is insufficient evidence of capacity to continue to ensure that the teacher education program will be able to collect and analyze data on key assessments in support of its claims.

3. **Justification for the stipulation cited in *Quality Principle 3.2***
   The program faculty and administration have realized that significant further revision will be needed to get the quality of performance data necessary. Using data from students and alumni as well as the internal audit, faculty also identified the need to strengthen, systematize and better articulate the outcomes from field experiences and student teaching.

The Teacher Education program's TEAC initial accreditation status is effective between October 4, 2013 and October 4, 2020, provided the cited stipulation is satisfied by October 4, 2015.

This letter will be sent in both electronic and paper format, and, with the paper copy, we will enclose an insert that you may wish to display in your membership plaque.

Your initial accreditation status also entitles your program to use the statements of affiliation and accreditation in the endnote below[ii] and is conditional upon your continued adherence to the principles, standards, and policies of the *Inquiry Brief* Commission as described on the TEAC website (www.teac.org). In announcing your accreditation status, you must make clear that it is

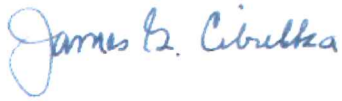
the teacher education program cited in your *Inquiry Brief* that is accredited by the IB Commission and not your department and institution.

You will receive an email announcement in early November describing CAEP's requirements for your annual reports which will include measures of program impact, measures of program outcome and consumer information, the number of completers, substantive changes (if any), progress on addressing the area for improvement in *Quality Principle 2.3*, and updates related to the Appendix E. Your first report is due by April 20, 2014 and needs to be up-loaded into the Accreditation Information Management System (AIMS).

In keeping with CAEP's policy on Public Disclosure and Transparency of Accreditation Information (Policy XXXIX), we request that you post links to performance assessment summaries and other information (including websites reporting Title II data) in addition to creating a link to the Summary of the Case, included in your audit report, that appears with your accreditation status on the TEAC website at http://www.teac.org/membership/teac-members/.

Congratulations on your accreditation achievement. We look forward to learning more about the evidence for the continued improvements you will be making in your Teacher Education program. We hope you will share what you are learning with others at CAEP and other conferences and will continue to be an active participant in CAEP and the IB Commission.

Sincerely yours,



James G. Cibulka
President

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[i] *The Teacher Education Program offers options at the undergraduate level in elementary education-special education, elementary education and secondary education in chemistry, mathematics and physical science. The state of Michigan, at its discretion, offers licensure to program completers in these option areas.*

[ii] **Statements of Affiliation and Accreditation**
Programs accredited by the IB Commission of the Council for the Accreditation of Educator Preparation that wish to state this affiliation in published materials should use one of the following official statements, in accordance with CAEP Policy VI (Representation of Accreditation Status to the Public):

The Teacher Education Program at Lake Superior State University is awarded TEAC initial accreditation by the Inquiry Brief Commission of Council for the Accreditation of Educator Preparation (CAEP) for a period of five years, from 2013-2018. The accreditation does not include individual education courses offered to P-12 educators for professional development, relicensure, or other purposes.

Council for the Accreditation of Educator Preparation

1140 19th Street, NW | Suite 400
Washington, DC 20036
tel: 202.223.0077 | fax: 202.296.6620
caepnet.org

November 18, 2015

Lake Superior State University Teacher Education Program
650 West Easterday Avenue
Sault Sainte Marie, MI 49783

Dear Dr. Donna Fiebelkorn,

I am pleased to confirm that the Inquiry Brief Commission of the Council for the Accreditation of Educator Preparation (CAEP) concluded at its meeting on October 24, 2015, in Bethesda, MD that the evidence presented with your petition for stipulation removal merits removal of the stipulation in TEAC Quality Principle III, Component 3.2 cited in the Spring 2013 site visit of the Lake Superior State University Teacher Education Program.

The original stipulation stated:

3.2: There is insufficient evidence of capacity to continue to ensure that the teacher education program will be able to collect and analyze data on key assessments in support of its claims.

The Inquiry Brief Commission reviewed the original accreditation decision where the stipulation was cited, as well as the stipulation removal case analysis, annual reports, and other documentation describing the program's response to the stipulation. Based on that review, the Inquiry Brief Commission passed the following motion:

> The stipulation attached to the Spring 2013 accreditation decision for the Lake Superior State University Teacher Education Program.

The justification offered for this decision is as follows:

> The material submitted for the removal of the stipulation provides ample evidence that the Teacher Education Program at Lake Superior State University has the capacity to collect and analyze data on key assessments in support of its claims, thereby adequately addressing the concerns raised by the TEAC Accreditation Committee.

You will receive a copy of this letter in both electronic and paper format.

If you have any questions about this decision or about accreditation going forward, please contact Glenda Breaux, Director for the Inquiry Brief Pathway at glenda.breaux@caepnet.org.

Congratulations on your accreditation achievement.

Christopher A. Koch

Christopher A. Koch, Ed.D.
President

cc:
Dr. Donna J. Fiebelkorn
Assistant Dean, School of Education
dfiebelkorn1@lssu.edu

PROGRAM EVALUATION REPORT

Submitted to

National Environmental Health Science and Protection Accreditation Council

Table of Contents

A. Identification

Program Name: Bachelor of Science in Environmental Health

Name of school/department: Dept. of Chemistry & Environmental Sciences
School of Physical and Environmental Sciences

Name of Institution: Lake Superior State University

Name of Program Administrator:
Derek D. Wright, Ph.D.
School of Physical Sciences
Lake Superior State University
650 W. Easterday Avenue
Sault Ste. Marie, MI 49783
906-635-2628 (telephone)
906-635-2266 (fax)
dwright1@lssu.edu

Name of Administrator who is to sign for the university: Tony McLain, Ph.D.
President, LSSU

Name of School/Department Chairperson: R. Marshall Werner, Ph.D.
Chair, Dept. of Chemistry & Env. Sci

Name of Dean of the College Natural and Mathematical Sciences:
Barbara Keller, Ph.D..

B. General Information

Lake Superior State University is located in Sault Ste. Marie in Michigan's Eastern Upper Peninsula. The university and its programs are accredited by the following agencies:

- The Higher Learning Commission and a member of the North Central Association, 230 S. LaSalle Street, Suite 7-500, Chicago, IL 60604-1413. Phone: 312-263-0456; 800-621-7440. Fax: 312-263-7462. www.ncahigherlearningcommission.org
- The American Chemical Society Committee on Professional Training, 1155 Sixteenth Street, N.W., Washington, DC 20036. Phone: 202-872-4589. Fax: 202-872-6066. Email: cpt@acs.org www.acs.org/cpt
- Commission on Accreditation of Athletic Training Education (CAATE), 2201 Double Creek Drive, Suite 5006, Round Rock, TX 78864. Phone: 512-733-9700. Fax: 512-733-9701. www.caate.net
- Engineering Accreditation Commission (EAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Phone: 410-347-7700. www.abet.org

- Engineering Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Phone: 410-347-7700. www.abet.org
- International Fire Service Accreditation Congress, 1700 West Tyler, Oklahoma State University, Stillwater, OK 74078. Phone: 405-744-8303. www.ifsac.org
- Michigan Board of Nursing and is accredited by the National League for Nursing Accreditation Commission, 3343 Peachtree Road NE, Suite 500, Atlanta, GA 30326.Phone: 404-975-5000. Fax: 404-975-5020. www.nlnac.org
- National Environmental Health Science and Protection Accreditation Council, 2632 SE 25th Avenue, Suite D, Portland, OR 97202. Phone: 206-522-5272. Fax: 206-985-9805. ehacoffice.org

Institutional Philosophy:
The vision statement, mission statement, and goals of Lake Superior State University are as follows:

Vision Statement:

Our programs grow and evolve in ways that keep our graduates at the cutting edge of technological and societal advances. As such, we will be viewed by our constituents as:

- The preferred regional choice for students who seek a quality education which provides a competitive edge in an evolving job market.
- An institution where relevant concepts are taught by quality faculty, and are paired with practical real-world experience to provide a well-rounded education.
- An institution which capitalizes on its location to instill graduates with an understanding of environmental issues and an overarching desire to be responsible stewards of the environment.
- A University that is highly student centered and empowers all students to realize their highest individual potential.

Mission Statement:

Our mission at Lake Superior State University is to help students develop their full potential. We launch students on paths to rewarding careers and productive, satisfying lives. We serve the regional, state, national and global communities by contributing to the growth, dissemination, and application of knowledge.

University Core Values:

- **Excellence in Teaching and Learning.** Teaching is our first priority and focuses on providing student/faculty interaction, learning, and research in current, relevant programs.

- **Opportunity**. Students have a wide range of opportunities to grow academically, professionally, culturally and socially. Opportunities are provided via work-study assignments, student organizations, internships, community outreach and leadership.

- **Diversity**. Students experience a campus community environment which is inclusive and welcoming.

- **Ethics and Values**. The University promotes an environment which values honesty, openness, and courteous behavior where everyone is treated with respect.

- **Stewardship**. LSSU provides a framework in which to leave the university and region financially and environmentally sound for future generations of LSSU students, alumni, and friends.

Program Objectives:

Objective I:

Prepare students in environmental health for careers dedicated to the protection of human health and a sustainable environment. This is accomplished through directed studies in Toxicology and Epidemiology, Public Health Care and Public Administration, Geographical Information Systems & Global Positioning Systems, and Environmental Systems that include environmental chemistry, hydrology, hazardous waste management, risk assessment, environmental law, and environmental economics.

Objective II:

Provide opportunities for students in environmental health both think critically and to apply their knowledge and skills to real world problems through research experiences (senior thesis) and internships at local public health departments, tribal health agencies, and related private industries.

Objective III:

Integrate student preparation in the environmental health with study in general education to prepare students to lead lives as self-motivated, responsible citizens, lifelong learners, and full participants in society.

Organizational Table of the Institution:

The LSSU structural organization is included as a table in Appendix A.

Brief Program History:

The bachelor of science program at LSSU was initiated in the Fall of 2001 in response to strong student, state and local government demand for an academic program to prepare students for careers in public health, environmental health, and related fields. The program resides with the Department of Chemistry & Environmental Sciences withing the School of Physical Sciences (administrative unit) in the recently renovated Crawford Hall of Science. The Department also offers bachelor programs in Chemistry, Forensic Chemistry, Environmental Chemistry, Environmental Science, and Environmental Management. The May 2, 2003 commencement ceremony marked the graduation of the first three students with B.S. degrees in Environmental Health at LSSU.

C. Curriculum

Admission Requirements:

Admission to LSSU is based on ACT scores and grade point average from an accredited high school. The overall average GPA for the 2005 freshman class is 3.05 on a scale of 4.0. The average ACT composite score was 21.03. Any student who is fully admitted to LSSU may be admitted into the Environmental Health program after meeting the following three requirements. The student must:

- earn 12 credit hours at the 100 level or above,
- earn a GPA of 2.00 or higher
- be eligible for 100-level math, reading and composition courses

Transfer students to LSSU must possess a 2.0 cumulative college GPA and be eligible to return to their former college. Students having fewer than 19 semester hours of credit must also send official high school transcripts or GED scores in addition to their college transcript. ACT scores must also be submitted if the student graduated from high school within 26 months of the semester entry. Transfer students may be enrolled in the Environmental Health program if they have met the three requirements listed previously.

Course Requirements:

a. Prerequisite Courses:

Students entering LSSU are placed into classes based upon ACT and LSSU placement exam scores. Test scores as indicated in the chart below determine the placement into English, and mathematics courses. The student may challenge the course placement by taking LSSU's placement exams. The placement exams

must be completed and scored prior to beginning course work at LSSU. Full course titles follow the chart.

English Course Placement		Challenge Course of Action			
If your ACT/SAT is:	Your Current English Course Placement	Placement Test Name	e-Write Score	COMPASS Score	Your NEW English Placement Will Be
ACT: 0 - 17 SAT: 0 - 430 or No ACT/SAT Scores	ENGL 091	Writing Skills A	2-5	0-100	ENGL 091
			6-7	0-69	ENGL 091
			6-7	70-100	ENGL 110
			8	0-69	ENGL 091
			8	70-95	ENGL 110
			8	96 or greater	Honors English
Options below (for English) are only available to those who have ACT/SAT test scores					
ACT: 18 - 25 SAT: 440 - 570	ENGL 110	Writing Skills B	2-7	0-100	ENGL 110
			8	0-95	ENGL 110
			8	96 or greater	Honors English
ACT: 26 or higher SAT: 580 or higher	Honors English	No Test Available			Honors English

Math Course Placement		Challenge Course of Action		
If your ACT/SAT is:	Your Current Math Course Placement	Placement Test Name	COMPASS Score	Your NEW Math Placement Will Be
ACT: 0 - 17 SAT: 0 - 430	MATH 081	Pre Algebra	0-46	MATH 081
			47-99	MATH 084
ACT: 18 - 20 SAT: 440 - 490	MATH 084	Algebra A	0-45	MATH 084
			46-65	MATH 102/110/207
			66-99	MATH 103-104/111
ACT: 21 - 22 SAT: 500 - 530	MATH 102/110/207	Algebra B	0-65	MATH 102/110/207
			66-99	MATH 103-104/111
ACT: 23 - 27 SAT: 540 - 630	MATH 103/104/111/131	College Algebra of & Trigonometry of	46-99	MATH 112 or MATH 151
			46-99	
		College Algebra of & Trigonometry of	46-99	MATH 112 or MATH 131
			0-45	
		College Algebra of & Trigonometry of	0-45	MATH 111
			46-99	
ACT: 28 or higher SAT: 640 or higher	MATH 112 or MATH 151 depending on program	No placement test	NA	MATH 112 or MATH 151 depending on program

Courses listed in the above table correspond to:

ENGL110: First-Year Composition I (3 cr)
MATH081: Pre-Algebra I (1 cr)
MATH084: Pre-Algebra I (1 cr)
MATH102: Intermediate Algebra (4 cr)
MATH103: Number Systems and Problem Solving (4 cr)
MATH104: Geometry and Measurement (4cr)
MATH108: Trigonometry and Vectors for Physics (1 cr)

MATH110: Explorations in Mathematics (3 cr)
MATH111: College Algebra (3 cr)
MATH112: Calculus for Business and Life Sciences (4 cr)
MATH131: College Trigonometry (3 cr)
MATH151: Calculus I (4 cr)
MATH207: Principles of Statistical Methods (3 cr)

b. Professional/Technical Courses Taught Outside This Program:

There are no courses currently taught outside the program.

c. Professional/Technical Courses Taught Within This Program:

Program Required Courses:

Course #	Title	Instructor
BIOL131	General Biology I	Various Biology Faculty
BIOL132	General Biology II	Various Biology Faculty
BIOL204	General Microbiology	Martha Hutchens, Ph.D.
BIOL285	Principles of Epidemiology	Gregory Zimmerman, Ph.D.
CHEM115	General Chemistry I	Alexi Iretski, Ph.D. or Roger Blanchard, Ph.D.
CHEM116	General Chemistry II	Alexi Iretski, Ph.D.
CHEM225	Organic Chemistry I	R. Adam Mosey, Ph,D.
CHEM231	Quantitative Analysis	Christopher Heth, Ph.D.
CHEM341	Environmental Chemistry I	Derek Wright, Ph.D.
CHEM453	Intro to Toxicology	R. Marshall Werner Ph.D.
ECON307	Environmental Economics	Economics Faculty
EVRN131	Introduction to GPS and GIS	A. Munoz-Hernandez, Ph.D. O. McCready
EVRN231	Intermediate GIS	A. Munoz-Hernandez, Ph.D. O. McCready
EVRN311	Environmental Law	Derek Wright, Ph.D. A. Munoz-Hernandez, Ph.D
EVRN313	Solid & Hazardous Waste	Derek Wright, Ph.D. A. Munoz-Hernandez, Ph.D
EVRN395	Junior Seminar	Derek Wright, Ph.D.
EVRN425	Environmental Systems	A. Munoz-Hernandez, Ph.D
EVRN499	Senior Thesis	R. Marshall Werner, Ph.D
GEOL411	Hydrologic Systems: Surface & Groundwater	A. Munoz-Hernandez, Ph.D.

HLTH210	Intro to Health Care Concepts	Various Nursing Faculty
HLTH328	Multicult. Approach to Health Care	Ron Hutchins, MSN
INTD399	Internship in Environmental Health	Various Chemistry faculty
MATH112	Calculus for Life Sciences	
or		
MATH151	Calculus I	Various Math faculty
MATH207	Principles of Statistical Methods	Various Math faculty
NSCI103	Environmental Science	Derek Wright Ph.D.
NSCI104	Environmental Science Lab	Derek Wright Ph.D.
PHYS221	Elements of Physics I	Matthew Spencer, Ph.D.
POLI201	Intro to Public Administration	Various Political Science Faculty

Directed Electives:

BIOL126	Interp. of Maps &Aerial Photo.	Dennis Merkel, Ph.D.
BIOL 230	Soils	Dennis Merkel, Ph.D.
BIOL280	Biometrics	Gregory Zimmerman, Ph.D.
BIOL422	Parasitology	Martha Hutchins, Ph.D.
CHEM251	Biochemistry I	R. Marshall Werner, Ph.D.
CHEM332	Instrumental Analysis	Christopher Heth, Ph.D.
INTD300	Human Environment	Various Biology faculty
POLI342	International Env. Policy	Political Science faculty

General Education Requirements:

ENGL110	First-Year Composition I	Various English faculty
ENGL111	First-Year Composition II	Various English faculty
ECON202	Microeconomics	Economics faculty
HLTH328	Multicultural App. To Health Care	Ron Hutchins, MSN
HUMN251	Humanities I	Various Humanities faculty
	Approved Humanities*	Various
COMM101	Fund. of Speech Comm.	Various Speech faculty

* Course must be approved to use for general education credits.

Syllabi for the required courses are included in Appendix E. The syllabi include course objectives, the course outline for the class schedule of lectures or laboratories, assignments, text, and credit hours.

Professional Course Evaluations, Curriculum Evaluations:

a. Student Evaluations:

Student participation in the evaluation of the courses and the instructors is strongly encouraged through student participation in a course questionnaire at the end of the semester during one of the regularly scheduled class periods. The instructor of the course asks for a student volunteer to collect the completed questionnaires and return them to the main office of the College of Natural and Health Sciences. The standardized questionnaire is divided into two sections: instructor evaluation and course evaluation. The students have the option of marking their answers as *disagree, tend to disagree, neither disagree, tend to agree, agree, or not applicable.* Some examples of questions that are asked in each section include:

Instructor Evaluation

1. Provides clearly stated course objectives.
2. Relates course content and requirements to course objectives.
3. Assists students in achieving course objectives.
4. Demonstrates mastery of the subject.
5. Uses class time effectively.
6. Explains difficult concepts clearly.
7. Encourages students to think independently.
8. Helps students develop critical thinking and problem solving skills.
9. Is approachable and helpful to students in and out of class.
10. Includes current research findings and ideas.

Course Evaluation

1. The course was logically organized.
2. The content of the course was challenging.
3. The lab materials were sufficient and helpful.
4. The lab assignments related to course objectives and class content.
5. This course stimulated my desire to learn.

Student anonymity is maintained by the Dean's office tabulating the responses and returning a response report only to the faculty member.

Students also provide valuable feedback information after they have graduated and moved into the working world. Many stay in contact through the phone and email system. This feedback provides information about the overall education and preparation that the student received during his/her undergraduate tenure at LSSU.

b. Instructor Evaluations:

Instructor evaluation of the courses and curriculum is an on-going process that involves constant student assessment through:

- student classroom participation,
- performance of the student on both instructor-written and standardized exams,
- completion and write up of experimental reports for the accompanying laboratories
- feedback from sponsors of student internships
- feedback from former students and their employers after leaving LSSU
- reviewing the student evaluation report for the instructor and course evaluation

In Fall 2012, the University implemented Tracdat assessment software creating a central repository for course, program, and University assessment activities. Over the next four years (a full instructional cycle, considering the significant number of every other year courses), all University course assessment will be recorded in the Tracdat software. This assessment data will be readily available to faculty, and will be incorporated into ongoing program assessment activities, which will also be recorded in the Tracdat software.

Curriculum change is a constant process that is tied into the course content and student program evaluations. As information becomes available that suggests changes be made to the curriculum, faculty members from the department may propose the addition of a new course or the deletion of an existing course. After a department vote, the proposed curriculum program change advances to the School of Physical and Environmental Sciences where it must be passed by a simple majority of the faculty. Successful program changes are then advanced to the University Curriculum Committee for final approval. Once approved, the change is implemented. The University Catalog reflects the change on the next printing, while the university website can reflect the revision to the program immediately.

Since 2006, the Department of Chemistry and Environmental Sciences has gone through a series of program changes as a result of the ongoing program assessment process, including new accreditation guidelines for the Chemistry programs from the American Chemical Society. A summary of changes affecting the environmental health program since the last accreditation visit in 2006 include:

- EVRN 317 (Environmental Health Applications) was added to the curriculum to address content in Food Safety, and other EH specific topics.
- CHEM 116 (General Chemistry II) will increase from 4 to 5 semester credit hours effective Spring 2013
- CHEM/EVRN 341 & 342 (Environmental Chemistry I & II) have been combined into a single course (CHEM 341 Environmental Chemistry) to reduce content overlap, better focus the course, and free faculty load to teach EVRN 317 (Environmental Health Applications)

- EVRN 425 (Environmental Systems Analysis) was increased from 3 cr. Hrs to 4 cr. hrs. to accommodate water/wastewater treatment content formerly taught in CHEM/EVRN 341.
- The GIS/GPS coursework was realigned to the current EVRN 131/231 sequence (5 semester credit hours total, including 2 labs)

Future Plans for Curriculum Changes:

Future curriculum changes will be based on departmental assessment data (program, course, and student assessment data), recommendations of the program advisory committee, and results of the program reaccreditation review.

Program assessment is a continuous process and program faculty meet regularly to discuss curriculum and student achievement of learning outcomes. In addition, as a part of University wide assessment efforts, the University is in the process of implementing a formal program assessment schedule, which will document assessment activities and their results through both the Tracdat software and formal reports. These changes will ensure continued attention to robust program assessment.

University Catalog:

Our catalog is now online and interactive. A link to the current catalog is below:

http://www.lssu.edu/cmscatalog1213/

D. Student Data (undergraduate curriculum)

1. Current Enrollment

Freshman	2
Sophomore	1
Junior	1
Senior	1

2. Number of graduates during the past five years

2008	2
2009	2
2010	2
2011	5
2012	1

3. List of graduates from the last 2 years

A. Self Study Report Year	B. Accredited School Name	C. Student Name	D. Student Graduation year	E. Name of Employer	F. Employment/ Status Category	G. Employed In State	H. Employed Out of State
2012	Lake Superior State Univeristy	Baker, Celeste	2011	Unknown	N/A	Unknown	Unknown
2012	Lake Superior State Univeristy	Brace, Richard	2011	Maryland Department of Health	PU	No	Yes
2012	Lake Superior State Univeristy	Powser, Gina	2011	Northeast Laboratory Services	PI	No	Yes
2012	Lake Superior State Univeristy	Rink, Elizabeth	2011	FM Global	PI	No	Yes
2012	Lake Superior State Univeristy	Wilson, Rebecca	2011	Unknown	N/A	Unknown	Unknown
2012	Lake Superior State Univeristy	Szlag, Victoria	2012	University of Minnesota	ED	No	Yes

4. Enrollment changes/trends

Total enrollments in the Environmental Health program for the past 5 years are shown below.

2008	6
2009	10
2010	11
2011	10
2012	5

Total program enrollment has averaged 8.4 students over the past 5 years. Current program enrollment has been affected by a relatively large graduating class in 2011. Recent department faculty changes (including the recent departure of former program director Dr. David Szlag) may have affected recent program recruitment, but efforts are currently in place to enhance student recruiting. Ideal program enrollment is in the 12-21 student range or ~50-70% of the total program capacity. Enrollments in upper level courses within our department are ideally in the range of 8-15 students. Enrollment growth to 100% of program capacity has the potential to increase course enrollments above this ideal range, as courses are typically utilized by students in several degree programs.

5. Program capacity

Under the present conditions, our program capacity is 25 to 30 students total (spread over the four years of the program). Growth beyond this number of students would likely require additional faculty to increase the frequency of upper level course offerings and/or to offer additional laboratory sections.

6. Graduate level programs

   Currently there is no graduate level program in environmental health offered at Lake Superior State University.

7. Integration of undergraduate/graduate programs

   Not applicable

E. Faculty

1. List of Faculty

Dr. Derek Wright, Assistant Professor of Chemistry and Environmental Sciences. Dr. Wright has a Ph.D. in Environmental Science, and is a full-time tenured faculty member of the department. As a former practitioner in environmental health, Dr. Wright has recently assumed the position as Coordinator of the Environmental Health Program. Dr. Wright's areas of specialty includes environmental health, environmental law, environmental chemistry, and trace element bioaccumulation/biomagnification. Dr. Wright will teach courses covering this information for the Environmental Health program

Dr. Roger Blanchard, Assistant Professor of Chemistry and Environmental Sciences. Dr. Blanchard has a Ph.D. in Chemistry and is a full-time faculty member of the Chemistry and Environmental Science department. Dr. Blanchard's area of specialty includes general chemistry, analytical chemistry, and environmental science. Dr. Blanchard will teach courses covering this information for the Environmental Health program.

Dr. Andrea Munoz-Hernandez, Assistant Professor of Chemistry & Environ Sciences. Dr. Hernanadez has a Ph.D. in Environmental Engineering and is a full-time tenure track faculty member of the Chemistry and Environmental Science department. Dr. Hernanadez's areas of specialty include Water Resources, Environmental Systems, Hydrogeology, and GIS. Dr. Hernanadez will teach courses covering this information for the Environmental Health program.

Dr. Christopher Heth, Assistant Professor of Chemistry and Environmental Sciences. Dr. Heth has a Ph.D. in Chemistry and is a full-time tenure track faculty member of the Chemistry and Environmental Science department. Dr. Heths's areas of specialty include analytical chemistry and materials science. Dr. Heth will teach courses covering this information for the Environmental Health program.

Dr. Martha Hutchens, Assistant Professor of Biology. Dr. Hutchins has a Ph.D & MT(ASCP)^{CM} and is a full-time-tenure track faculty member of the Biology department. Dr. Hutchens area of specialty includes Microbiology, Medical

Laboratory Science, Immunology. Dr. Hutchens will teach courses covering this information for the Environmental Health Program.

Dr. Alexei Iretski, Associate Professor of Chemistry and Environmental Sciences. Dr. Iretski has Ph.D. in Chemistry and is a full-time tenured faculty member of the Chemistry and Environmental Science department. Dr. Iretski's area of specialty includes general chemistry, and inorganic chemistry. Dr. Iretski will teach courses covering this information for the Environmental Health program.

Dr. Dennis Merkel, Associate Professor of Biology. Dr. Merkel has a Ph.D. in biology and is a full-time tenured professor of the Biology Department. Dr. Merkel's area of specialty includes soils and geospatial and air photointerpretation. Dr. Merkel will teach courses covering this information for the Environmental Health Program.

Dr. R. Adam Mosey, Assistant Professor of Chemistry and Environmental Sciences. Dr. Mosey has a Ph.D. in Organic Chemistry and is a full-time tenure track faculty member of the Chemistry and Environmental Science department. Dr. Mosey's areas of specialty include organic chemistry and medicinal chemistry. Dr. Mosey will teach these areas for the Environmental Health program.

Dr. Matthew Spencer, Assistant Professor of Geology and Physics. Dr. Spencer has a Ph.D. in Geosciences, and is a full-time tenured faculty member of the department. Dr. Spencer's areas of specialty includes geophysics, physics, and climatology. Dr. Spencer will teach courses covering this information for the Environmental Health program

Dr. R. Marshall Werner, Professor of Chemistry and Environmental Sciences. Dr. Werner has a Ph.D. in Bio-Organic Chemistry and is a full-time tenured faculty member of the Chemistry and Environmental Science department. Dr. Werner's area of specialty includes organic chemistry and biochemistry. Dr. Werner will teach the directed electives and biochemistry for the Environmental Health program.

Dr. Gregory Zimmerman, Chair and Associate Professor of Biology. Dr Zimmerman has a Ph.D. in Biology and is a full-time tenured faculty member of the Biology department. Dr. Zimmerman's area of specialty includes ecology, biometrics, and epidemiology. Dr. Zimmerman will teach the core courses in this area for the Environmental Health program.

Note: The Dept. of Chemistry and Environmental Sciences also has two additional temporary faculty (Dr. Nguyen and Ms. Smith) due to the late resignations of Dr. Westrick and Szlag. They are not currently teaching courses used in the EH Program.

2. Teaching and Advising Loads for Faculty

a. Teaching loads

Full-time faculty at LSSU generally teach 24 contract hours per academic year (9months). If a faculty member so chooses, he or she may teach at a maximum up to 16 contract hours per semester or 32 contract hours per academic year. Due to ACS accreditation however, faculty that also teach in the Chemistry programs (including Dr. Wright) are limited to 15 contact hours (15 hours of classroom instruction per week) per semester.

b. Advising loads

There are no limits officially set for the number of advisees that a faculty member may advise. Typically in the Dept. of Chemistry and Environmental Sciences our advisee load is 30 advisees or less per full time faculty.

3. Evaluation of Faculty Performance

Faculty evaluations are completed annually for each non-tenured faculty member and at least once every three years for tenured faculty. These evaluations are carried out by the immediate supervisor (academic dean or associate provost). The criteria that a faculty member is evaluated on include instructional performance, professional development, and university and community service.

4. Faculty Professional Activities Outside the Organization

Faculty are expected to maintain an active professional development program at LSSU. This includes a) memberships in professional organizations, b) professional activities (e.g., publication of books or papers, speaking engagements, consulting, research, etc.), c) educational experiences (e.g., attending workshops, summer institutions, professional conferences). Additionally the faculty are expected to contribute to the local community through service activities that might include sitting on local government boards, providing expertise to local agencies in their area of specialty, teaching community educational courses, etc.

5. Development Activities Available to Faculty

Each faculty member is provided with $800/academic year for professional development activities. This money can be used by the faculty member to attend conferences, workshops, and summer institutions. Or, it may be used to help pay publication costs for publishing manuscripts or books. Additionally, tenured faculty are eligible to apply for a sabbatical leave of up to one academic year for professional development activities within the terms of the faculty contract agreement.

F. Facilities and Resources

1. Library Facilities

Lake Superior State University houses the Schouldice Library, a comprehensive university library that is available to university students, university faculty, and the surrounding community. The library is home to over 256,854 books, journals, government documents, microfilm, microfiche, and maps. Additionally, the library has access to over 22 databases in the sciences. A list of the journals and science data bases are included in the Appendix B of this document.

Additionally, LSSU faculty and students have access to scientific journals contained in the library of the Canadian Forest Service in Sault Ste. Marie, Ontario (3 miles from LSSU). This facility houses well over 1500 scientific journals. A list of these is included in the Appendix C of this document.

2. Computer and Internet Resources

All LSSU faculty members are provided with a PC computer that is hooked up to the university's high speed LAN internet system. Student computer laboratories containing up to 30 computers each, are located in the university library and are available to all students. These computers are equipped with standard Microsoft packages (e.g., Word, Excel, PowerPoint, Access) and also are connected to the university internet system. Additionally, there are computer laboratories based within the disciplines around campus, including laboratories in engineering, nursing, mathematics, business, and the sciences. These computers are available to students who are enrolled in classes in the specific discipline.

3. Laboratory Facilities

In 2000, a $23 million renovation of LSSU's natural science facility, Crawford Hall, was completed. This newly renovated 11,891 m^2 facility was awarded the "Renovated Lab of the Year Award" by Research & Development Magazine and provides 20 teaching laboratories, 5 dedicated undergraduate research laboratories, 3 computer teaching laboratories (20 seats each), and 4 dedicated instrument rooms. There are also 3 walk-in temperature controlled chambers, a walk-in dark room, and other laboratories that are shared between all of the science departments. Of these, 5 undergraduate laboratories, 1 instrument room, and 2 undergraduate research rooms are dedicated to the chemistry department. In addition, one of the research laboratories houses a Class 100 clean room that is dedicated to support trace elemental analysis using ICPMS.

Instrumentation & Support Facilities

The department maintains a wide variety of modern instrumentation, which is utilized throughout the curriculum in both courses and in capstone research experiences. Funds to maintain and replace instrumentation come from a combination of departmental funds and faculty grant writing activities. Recent acquisitions which support the Environmental Health program include a q-PCR, thermocycler, DNA prep/biohazard workstations. The additional purchase of a discreet analyzer (automated colorimetric analyzer) is expected in the next 3 months.

Applied Biosystems q-PCR and Thermocycler

HEPA filtered/UV sterilized DNA workstations

HEPA Filtered/UV sterilized Level II Biohazard workstation

Agilent Inductively Coupled Plasma Mass Spectrometer (ICPMS)

Class 100 Clean Room for Trace Metal Sample Preparation

5890 Agilent GC/MS with automated purge and trap and autosampler

HP GC/MS with autosampler

CEM Microwave Digester

3 Agilent Gas Chromatographs w/FID or TCD Detectors

Waters Alliance HPLC with photodiode array and fluorescence detectors.

Anasazi 60MHz FT-NMR

Perkin Elmer Atomic Absorption Spectrophotometers with graphite furnace and flame introduction systems

2 Perkin Elmer FT-Infrared Spectrophotometers

Perkin-Elmer Double Beam UV/Vis Spectrophotometer

Ocean Optics Diode Array Vis/NIR Spectrophotometer

Perkin Elmer Elemental Analyzer (CHNO/S)

JSM 6100 Scanning Electron Microscope with Energy Dispersive X-Ray Spectroscopy

Dionex Ion Chromatograph

Biotek Fluorescent 96-well microplate reader

UV/Vis & Fluorescent 96-well microplate reader

2 IDEXX Colisure Sealer for Quantitative Coliform/E.Coli analysis

Variety of Ion Selective Electrodes and pH meters

Variety of environmental field equipment including high volume samplers, Hach chemical testing equipment, flowmeters, sampling pumps, augers, level-loggers, etc.

HEPA & Perchloric Acid hoods

4. Instructional Facilities/ Learning-Aid resources

As mentioned above, Crawford Hall has 20 instructional classrooms. All of these have built-in high speed internet connections (LAN), computer projectors, and audio systems. These rooms range in capacity from 180-15 students. Laboratory rooms are also designed for instructional purposes having LAN connections and audio-visual capabilities.

LSSU maintains a full time on campus learning center that oversees student tutoring, testing, and supplemental instruction. Many of the introductory courses (CH115/CH116, CH225/CH226) that are required for the environmental health program routinely have supplemental instruction and tutoring for students enrolled in these classes.

5. Anticipated Facility and Equipment Changes

Crawford Hall houses the sciences at LSSU, including the Environmental Health program. The building was recently renovated (see section 3 above) and is currently a state-of-the-art science facility. We do not anticipate any facility changes for this building for the next several years. The department is continually updating equipment through their grant writing capability. We expect this to be an ongoing process, continually adding to and updating the current equipment.

6. External Facilities/Agencies/Organizations

Internships:
Students in this program have found paid internship opportunities at the following:

- Chippewa County Environmental Health Department, Sault Ste. Marie, MI
- Luce/Mackinac County Environmental Health Department, Newberry, MI
- Oakland County Health Department, MI
- Door County Health Department, WI
- Branch-Hillsdale-St. Joseph Community Health Agency in Michigan
- Benzie County Health Department, Benzonia, MI
- NTH Consultants, Ltd., Farmington Hills, MI

Students and Faculty have worked closely together to find high quality internship sites, generally either in the eastern upper peninsula, or near the students home.

Field Experiences Outside the Internship:

Field trips are a common occurrence in many of the laboratory courses associated with this program. The environmental health applications course includes filed trips to a swimming pool and a food service establishment, as well as experience in site evaluation for well and septic installation, recreational water quality sampling, drinking water sampling for heavy metals, and a housing risk assessment. The environmental chemistry course includes a number of laboratories that are predominantly field based. Students are trained in environmental sample collection and field and laboratory analysis for a variety of analytes (pH, conductivity, hardness, dissolved oxygen, total coliform, etc.). The environmental systems course has included field trips to the wastewater treatment facility in Sault Ste. Marie, MI and to a local landfill in Dafter, MI. The toxicology course has included field trips to the Michigan Department of Environmental Quality's (MDEQ) facilities in Lansing, MI. There, the students toured the labs and met with MDEQ scientists.

The department also houses an Environmental Analysis laboratory that accepts environmental samples for analysis from the local community, including the local health department. Student workers are employed by the laboratory to help with the analyses. Environmental Health students can apply for work in this laboratory.

Organizations:

Several faculty members in the department have collaborative research projects with the Chippewa County Environmental Health Department and the Chippewa County Conservation District. These collaborative projects also include opportunities for student research projects. Historically, a couple of resulting environmental health research projects included evaluating Chippewa beaches and inland lakes for fecal coliform/E. Coli. Students were also involved in a Conservation District projects to evaluate the water quality of several streams within Chippewa County and the Munuscong and Little Munuscong Rivers. Students were also involved in a large study in 2010-2011 of E. Coli in the St. Marys River AOC funded by the Great lakes Restoration Initiative.

7. Advisory Committee

Dr Wright, has recently reestablished the program advisory committee. It anticipated that this committee will meet each spring either at LSSU or in conjunction with the Michigan Environmental Health Association Annual Education Conference.

Faculty Members include:

- Dr. Derek Wright
- Dr. Gregory Zimmerman
- Dr. Andrea Munoz-Hernandez

External members include:

- Christine Daley, Environmental Health director, Chippewa Co. Health Dept.

- Mary St. Antoine, REHS. Chemical Hygiene Officer and Science Lab Coordinator, LSSU
- Rob Wolfe, Michigan Department of Environmental Quality
- James Padden (invited), Michigan Department of Agriculture

G. Program Funding

1. Major Sources of Funding

The program is currently funded through 1) the university's general academic budget and 2) through laboratory course fees. The funding for this program has been stable for the past 5 years, and we expect that to continue for the foreseeable future. Both sources of funding are based on the number of students who are enrolled in the program. If enrollment increases, as projected, the funding will also increase proportionately.

2. Research or Special Project Grants

Several faculty in the department have received grants to evaluate environmental issues in our area. Many of those projects involved students who were/are enrolled in the Environmental Health program. Examples of grants, funded by the National Science Foundation, US Environmental Protection Agency, and the Michigan Department of Environmental Quality, include funding to evaluate chemical and biological contaminants in area rivers and streams. These types of grants are not ongoing continuing projects. However, the faculty continue to write grant proposals and we expect that we will continue to receive funding for environmental projects here at LSSU.

The Chippewa County Environmental Health department has also received funding through the Michigan Clean Beaches and Inland Lakes programs for the past several years to evaluate levels of coliform and E. Coli. They have included money in these grants to hire one of our Environmental Health students to help with the collection and evaluation of these of these samples. Additionally, the grants include funding to pay one of our students to do the laboratory analysis of these samples. While this is also not a continuing grant, we expect to work with the local environmental health department as they continue to submit proposals for funding. It is possible that many of their projects might include students from our program.

H. Faculty/Administration Evaluation

1. Major Strengths of the Program

The Environmental Health curriculum has a strong foundation in the basic sciences. The program includes courses in chemistry, biology, geology, physics, and the environmental sciences. Additionally, the program includes core materials in social science and health areas, including course work in environmental economics, environmental policy, and

health care. The students receive a broadly based education in multi-disciplinary areas, which is critical for a well rounded environmental health professional.

This program, while housed in the Dept. of Chemistry and Environmental Sciences at LSSU, contains many courses that are taught by other departments. This allows the department to spread some of the cost associated with teaching this program to other departments. Our university is small and our faculty know each other. We have a history of working together on collaborative multidisciplinary projects. So, we are able to deliver a strong program at a reasonable cost. Since the program is still relatively new and our enrollment is small, we have the infrastructure and resources for the program to grow.

Our program is small and personal. The faculty teach both the courses and the associated laboratory work. We know all of our students by name. We work with these students doing hands-on applied projects. Based on feedback that we have received from our graduates who are working in the field, this is a real plus for our program.

2. Problem Areas

The greatest challenge that the program faces currently is maintaining student enrollment within the ideal range of 12-21 students. Enrollment has averaged ~8 students over the past five years. Thus, an increase in student enrollment of 50-100% would be desirable. That said, as the courses utilized by the program are typically also used by other programs at the University, lower program enrollment has not resulted in abnormally low course enrollment or course cancellation. Program faculty are currently developing new student recruitment strategies to further grow student enrollment over time.

If the program grows significantly, we will need to hire new faculty to handle the increased teaching and advising loads. This should not be a problem if the growth of the program is slow and steady. If future growth was rapid, it would tax our faculty resources and this could become a problem.

The resources in our library are somewhat limited at the present time. However, additional resources are readily available through interlibrary loan, and usually available to students and faculty within a few days time. Fortunately, we also have access to the library of the Canadian Forest Service across the river in Sault Ste. Marie, Ontario. If crossing the international border becomes and issue, the library resources could become limited to those at our university.

3. Long-Term Plans for the Program

We hope to increase enrollment in this program to a sustainable 15 to 20 students over the next few years. We have also established an advisory committee for this program to

offer suggestions and guidance for this program. The ultimate goal is a program that continues to provide top quality environmental health professionals to work in our state.

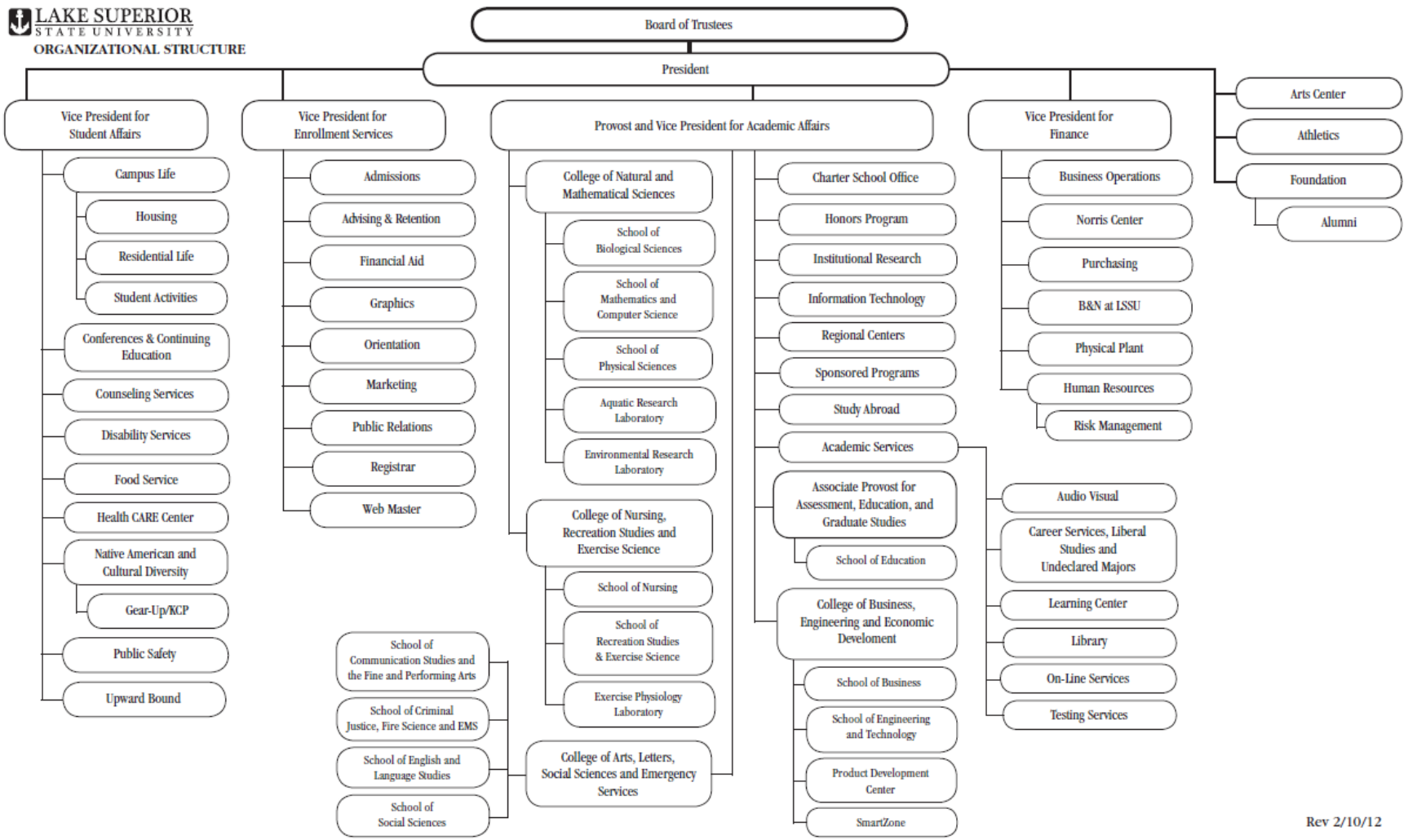
I. Official Signatures

November 30, 2012

Derek D. Wright, Ph.D.
Environmental Health Program Coordinator

Tony McClain, Ph.D.
President, Lake Superior State University

Appendix A


LAKE SUPERIOR STATE UNIVERSITY
ORGANIZATIONAL STRUCTURE
Board of Trustees
President
Vice President for Student Affairs
Campus Life
Housing
Residential Life
Student Activities
Conferences & Continuing Education
Counseling Services
Disability Services
Food Service
Health CARE Center
Native American and Cultural Diversity
Gear-Up/KCP
Public Safety
Upward Bound
Vice President for Enrollment Services
Admissions
Advising & Retention
Financial Aid
Graphics
Orientation
Marketing
Public Relations
Registrar
Web Master
Provost and Vice President for Academic Affairs
College of Natural and Mathematical Sciences
School of Biological Sciences
School of Mathematics and Computer Science
School of Physical Sciences
Aquatic Research Laboratory
Environmental Research Laboratory
College of Nursing, Recreation Studies and Exercise Science
School of Nursing
School of Recreation Studies & Exercise Science
Exercise Physiology Laboratory
College of Arts, Letters, Social Sciences and Emergency Services
School of Communication Studies and the Fine and Performing Arts
School of Criminal Justice, Fire Science and EMS
School of English and Language Studies
School of Social Sciences
Charter School Office
Honors Program
Institutional Research
Information Technology
Regional Centers
Sponsored Programs
Study Abroad
Academic Services
Associate Provost for Assessment, Education, and Graduate Studies
School of Education
College of Business, Engineering and Economic Develoment
School of Business
School of Engineering and Technology
Product Development Center
SmartZone
Audio Visual
Career Services, Liberal Studies and Undeclared Majors
Learning Center
Library
On-Line Services
Testing Services
Vice President for Finance
Business Operations
Norris Center
Purchasing
B&N at LSSU
Physical Plant
Human Resources
Risk Management
Arts Center
Athletics
Foundation
Alumni
Rev 2/10/12

Appendix B

LSSU LIBRARY HOLDINGS

JOURNALS

BIOLOGY – CHEMISTRY – ENVIRONMENTAL SUBSCRIPTIONS

ADVANCES IN APPLIED MICROBIOLOGY

ADVANCES IN BOTANICAL RESEARCH

ADVANCES IN ECOLOGICAL RESEARCH

ADVANCES IN GENETICS

ADVANCES IN ORGANOMETALLIC CHEMISTRY

ADVANCES IN PARASITOLOGY

AMERICAN BIOLOGY TEACHER

AMERICAN FISHERIES SOCIETY MEMBERSHIP/ INCLUDES/ FISHERIES/ NA JOURNAL OF FISHERIES

AMERICAN MIDLAND NATURALIST

AMERICAN NATURALIST

AMERICAN SCIENTIST

ANALYTICAL CHEMISTRY

ANNUAL REVIEW OF BIOCHEMISTRY

ANNUAL REVIEW OF ECOLOGY AND SYSTEMATICS

ANNUAL REVIEW OF GENETICS

ANNUAL REVIEW OF IMMUNOLOGY

ANNUAL REVIEW OF MICROBIOLOGY

ANNUAL REVIEW OF PHARMACOLOGY & TOXICOLOGY /FORMERLY/ ANNUAL REVIEW OF PHARAC

ANNUAL REVIEW OF PHYSIOLOGY

ANNUAL REVIEW OF PLANT BIOLOGY

AQUACULTURE MAGAZINE /INCLUDES/ BUYERS GUIDE (DEC ISSUE)

AUK INCLUDES SUPPLEMENTS

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CNS: JOURNAL FOR ADVANCED NURSING PRACTICE

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Scifinder (American Chemical Society) with full ACS journal access
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INTERNATIONAL JOURNAL OF BIOCLIMATOLOGY AND BIOMETEOROLO
INTERNATIONAL JOURNAL OF BIOMETEOROLOGY.
INTERNATIONAL JOURNAL OF CLIMATOLOGY.
INTERNATIONAL JOURNAL OF ECOFORSETRY.
INTERNATIONAL JOURNAL OF ENVIRONMENTAL ANALYTICAL CHEMIS
INTERNATIONAL JOURNAL OF GEOGRAPHICAL INFORMATION SCIENCE.
INTERNATIONAL JOURNAL OF GEOGRAPHICAL INFORMATION SYSTEMS
INTERNATIONAL JOURNAL OF INSECT MORPHOLOGY AND EMBTYOLO
INTERNATIONAL JOURNAL OF PEPTIDE AND PROTEIN RESEARCH.
INTERNATIONAL JOURNAL OF PEST MANAGEMENT.
INTERNATIONAL JOURNAL OF PLANT SCIENCES.
INTERNATIONAL JOURNAL OF VILDLAND FIRE.
INTERNATIONAL PAPERMAKER.
INTERNATIONAL PEAT JOURNAL.
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INTERNATIONAL REVIEW OF CYTOLOGY.
INTERNET WORLD.
INTERVIROLOGY.
INVESTING IN CANADA.
IPM PRACTITIONER.
IRISH FORESTRY.
IUFRO NEWS.

JAPAN PESTICIDE INFORMATION.
JAPANESE JOURNAL OF APPLIED ENTOMOLOGY AND ZOOLOGY
JAPANESE JOURNAL OF ECOLOGY.
JENA REVIEW. ZEISS INFORMATION.
JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY.
JOURNAL OF AGRICULTURAL, BIOLOGICAL, AND ENVIRONMENTAL STA
JOURNAL OF AGRICULTURAL RESEARCH.
JOURNAL OF AGRICULTURAL SCIENCE.
JOURNAL OF AGRICULTURAL TOXICOLOGY.
JOURNAL OF ANIMAL ECOLOGY.

JOURNAL OF APPLIED BACTERIOLOGY.
JOURNAL OF APPLIED ECOLOGY.
JOURNAL OF APPLIED ENTOMOLOGY.
JOURNAL OF APPLIED METEOROLOGY.
JOURNAL OF AQUATIC ANIMAL HEALTH.
JOURNAL OF ARBORICULTURE.
JOURNAL OF BACTERIOLOGY.
JOURNAL OF BIOCHEMICAL AND BIOPHYSICAL METHODS.
JOURNAL OF BIOLOGICAL CHEMISTRY.
JOURNAL OF BIOPHYSICAL AND BIOCHEMICAL CYTOLOGY.
JOURNAL OF BIOSCIENCES.
JOURNAL OF CELL BIOLOGY.
JOURNAL OF CELL SCIENCE.
JOURNAL OF CHEMICAL ECOLOGY.
JOURNAL OF CHROMATOGRAPHIC SCIENCE.
JOURNAL OF CHROMATOGRAPHY.
JOURNAL OF CLIMATE.
JOURNAL OF CLIMATE AND APPLIED METEOROLOGY.
JOURNAL OF COMPARATIVE PHYSIOLOGY.
JOURNAL OF DISPERSION SCIENCE & TECHNOLOGY.
JOURNAL OF ECOLOGY
JOURNAL OF ECONOMIC ENTOMOLOGY.
JOURNAL OF ECONOMIC LITERATURE.
JOURNAL OF ECONOMIC PERSPECTIVES.
JOURNAL OF ENTOMOLOGY. sA. GENERAL ENTOMOLOGY.
JOURNAL OF ENTOMOLOGY. SERIES B. TAXONOMY.
JOURNAL OF ENVIRONMENTAL ECONOMICS AND MANAGEMENT.
JOURNAL OF ENVIRONMENTAL QUALLITY.
JOURNAL OF ENVIRONMENTAL SCIENCE AND HEALTH. PART A.
ENVIRONMENTAL SCIENCE AND ENGINEERING.
JOURNAL OF ENVIRONMENTAL SCIENCE AND HEALTH PART B.
PESTICIDES, FOOD CONTAMINANTS AND AGRICULTURAL WASTES.
JOURNAL OF ENVIRONMENTAL SCIENCE AND HEALTH PART C.
ENVIRONMENTAL CARCINOGENESIS REVIEWS.
JOURNAL OF EXPERIMENTAL BIOLOGY.
JOURNAL OF EXPERIMENTAL BOTANY.
JOURNAL OF FOREST ECONOMICS.
JOURNAL OF FORESTRY.
JOURNAL OF GENERAL MICROBIOLOGY.
JOURNAL OF GENERAL VIROLOGY.
JOURNAL OF GREAT LAKES RESEARCH. (INTERNATIONAL ASSOCIATION
LAKES RESEARCH).
JOURNAL OF HEREDITY.
JOURNAL OF HIGH RESOLUTION CHROMATOGRAPHY AND
CHROMATATOGRAPHIC COMMUNICATIONS.
JOURNAL OF HISTOCHEMISTRY AND CYTOCHEMISTRY.
JOURNAL OF HORTICULTURAL SCIENCE.
JOURNAL OF IMMUNOLOGICAL METHODS.
JOURNAL OF IMMUNOLOGY.
JOURNAL OF INSECT PATHOLOGY.

JOURNAL OF INSECT PHYSIOLOGY.
JOURNAL OF LEISURE RESEARCH.
JOURNAL OF LIPID RESEARCH.
JOURNAL OF LIQUID CHROMATOGRAPHY.
JOURNAL OF MAMMALOGY.
JOURNAL OF MEDICAL ENTOMOLOGY.
JOURNAL OF METEOROLOGY.
JOURNAL OF MICROSCOPY.
JOURNAL OF MOLECULAR AND CELLULAR IMMUNOLOGY.
JOURNAL OF MOLECULAR BIOLOGY.
JOURNAL OF MORPHOLOGY.
JOURNAL OF PESTICIDE REFORM.
JOURNAL OF PHYTOPATHOLOGY.
JOURNAL OF PLANT PHYSIOLOGY.
JOURNAL OF PROTOZOOLOGY.
JOURNAL OF PULP AND PAPER SCIENCE. (CANADIAN PULP AND PAPER TECHNICAL SECTION).
JOURNAL OF RANGE MANAGEMENT.
JOURNAL OF RESEARCH ON THE LEPIDOPTERA.
JOURNAL OF SERICULTURAL SCIENCE OF JAPAN.
JOURNAL OF SOIL AND WATER CONSERVATION.
JOURNAL OF SOIL SCIENCE.
JOURNAL OF STRUCTURAL BIOLOGY.
JOURNAL OF SUSTAINABLE FORESTRY.
JOURNAL OF TERRAMECHANICS.
JOURNAL OF THE SOCIETY FOR TECHNICAL COMMUNICATION.
JOURNAL OF THEORETICAL BIOLOCY.
JOURNAL OF TISSUE CULTURE METHODS.
JOURNAL OF TOXICOLOGY AND ENVIRONMENTAL HEALTH.
JOURNAL OF TROPICAL FOREST SCIENCE.
JOURNAL OF ULTRASTRUCTURE AND MOLECULAR RESEARCH.
JOURNAL OF ULTRASTRUCTURE RESEARCH.
JOURNAL OF VEGETATION SCIENCE.
JOURNAL OF VIROLOGY.
JOURNAL OF WILDLIFE MANAGEMENT.

KNOTS AND SLIVERS.
KYOTO UNIVERSITY. FACULTY OF AGRICULTURE. MEMOIRS.

LAMMI NOTES.
LANCASTER'S HEALTH & SAFETY LAW REPORTER
LAND
LAND ECONOMICS.
LANDMARK.
LANDSCAPE ECOLOGY.
LANDSCAPE TRADES.
LANGUAGE AND SOCIETY.
LEPIDOPTERISTS' SOCIETY. JOURNAL.
LIMNOLOGY & OCEANOGRAPHY.
LINNAEAN SOCIETY OF LONDON.
LIPIDS.

LIVING SAFETY.
LOG BOOK.
LOGGING AND SAWMILLING JOURNAL.
LOTUS.

MACUSER
MACWORLD. THE MACINTOSH MAGAZINE.
MANAGER'S MAGAZINE.
MANITOBA ENTOMOLOGIST.
MECHANIZATION OF SILVICULTURE NEWSLETTER.
MEGADRILOGICA
METHODS. A COMPANION TO METHODS IN ENZYMOLOGY.
METHODS IN CELL SCIENCE.
METHODS OF BIOCHEMICAL ANALYSIS.
MICHIGAN ENTOMOLOGIST.
MICROBIAL ECOLOGY.
MICROBIOLOGICAL REVIEWS.
MICROBIOLOGY.
MICROSCOPICAL SOCIETY OF CANADA. BULLETIN.
MOLECULAR AND CELLULAR BIOLOGY.
MOLECULAR CELL BIOLOGY RESEARCH COMMUNICATIONS: MCBRC
MONTHLY CLIMATIC DATA FOR THE WORLD.
MONTHLY METEOROLOGICAL SUMMARY – OTTAWA INTERNATIONAL
MONTHLY METEOROLOGICAL SUMMARY. SAULT STE. MARIE, ONTARIO.
MONTHLY RECORD. METEOROLOGICAL OBSERVATIONS IN CANADA –
MONTHLY RECORD. METEOROLOGICAL OBSERVATIONS IN NORTHERN
MONTHLY RECORD. METEOROLOGICAL OBSERVATIONS IN WESTERN
MONTHLY RECORD. METEOROLOGICAL OBSERVATIONS. (CANADA)
MONTHLY WEATHER REVIEW.
MUTATION RESEARCH.
MY FOREST.
MYCOLOGIA.
MYCOLOGICAL RESEARCH.
MYCOLOGIST (THE).
MYCOTAXON

NATIONAL ACADEMY OF SCIENCES. PROCEEDINGS.
NATIONAL JOINT COUNCIL BULLETIN.
NATIONAL WETLANDS NEWSLETTER.
NATURALISTE CANADIEN.
NATURE.
NATURE BIOTECHNOLOGY.
NATURE: NEW BIOLOGY.
NEEM NEWSLETTER.
NETHERLANDS JOURNAL OF PLANT PATHOLOGY.
NETWORK NEWS: FOREST HEALTH AND BIODIVERSITY.
NEW FORESTS.
NEW PHYTOLOGIST.
NEW SCANDINAVIAN TECHNOLOGY.
NEW SCIENTIST.
NEW YORK ENTOMOLOGICAL SOCIETY. JOURNAL.

NEW YORK STATE NUSEUM. BULLETIN.
NEW ZEALAND FORESTRY.
NEW ZEALAND JOURNAL OF AGRICULTURAL RESEARCH.
NEW ZEALAND JOURNAL OF BOTANY.
NEW ZEALAND JOURNAL OF FORESTRY.
NEW ZEALAND JOURNAL OF FORESTRY SCIENCE.
NEW ZEALAND JOURNAL OF SCIENCE.
NEW ZEALAND SCIENCE ABSTRACTS.
NEXUS. THE MODEL FOREST NETWORK BULLETIN FOR ONTARIO.
NOTH AMERICAN JOURNAL OF FISHERIES MANAGEMENT.
NORTH CENTRAL WEED CONTROL CONFERENCE. PROCEEDINGS.
NORTH CENTRAL WEED CONTROL CONFERENCE. RESEARCH REPORT.
NORTH CENTRAL WEED SCIENCE SOCIETY. PROCEEDINGS.
NORTHEASTERN WEED SCIENCE SOCIETY OF AMERICA. PROCEEDINGS.
NORTHERN JOURNAL OF APPLIED FORESTRY.
NORTHERN ONTARIO BUSINESS.
NORTHERN SCIENCE NETWORK NEWSLETTER.
NORWEGIAN JOURNAL OF ENTOMOLOGY.
NUCLEIC ACIDS ABSTRACTS.
NUCLEIC ACIDS RESEARCH.

OFFICE HOURS.
OFFICE SYSTEMS AND TECHNOLOGY.
OH & S CANADA
ON LINE. NORTHWESTERN FORESTRY DEVELOPMENTS.
ON LINE (OMNR).
ON LINE TO CENTRAL ONTARIO SCIENCE & TECHNOLOGY DEVELOPMENT
ON LINE TO NORTHERN FOREST DEVELOPMENTS.
ONTARIO ARBORIST.
ONTARIO CLIMATE SUMMARY.
ONTARIO CONSERVATION NEWS.
ONTARIO FISH AND WILDLIFE REVIEW.
ONTARIO FOREST PRODUCTS MARKETING BULLETIN.
ONTARIO FORESTRY ASSOCIATION. NEWSLETTER.
ONTARIO FORESTS.
ONTARIO NATURALIST.
OPTIMUM.
OSHKI. THE NORTHEAST SCIENCE & TECHNOLOGY TECHNICAL NEWSLETTER.
OSHKI ONLINE. BOREAL SCIENCE NEWSLETTER.
OUTDOOR NEWS BULLETIN. (WILDLIFE MANAGEMENT INSTITUTE).
OVERVIEW (STATISTICS CANADA).

PAN-PACIFIC ENTOMOLOGIST.
PANS: PEST ARTICLES AND NEWS SUMMARIES.
PAPER TRADE JOURNAL.
PAPER TREE LETTER.
PARTNERS IN FORESTRY.
PBI BULLETIN.
PC MAGAZINE. THE INDEPENDENT GUIDE TO IBM-STANDARD PERSONA
PC WORLD
PCR METHODS AND APPLICATIONS.

PERSONAL AND PROFESSIONAL.
PERSOONIA: A MYCOLOGICAL JOURNAL.
PEST CONTROL.
PEST CONTROL CANADA.
PEST MANAGEMENT NEWS. (AGRICULTURE CANADA. RESEARCH BRACH
PEST MANAGEMENT PROGRESS – B.C. MINISTRY OF FORESTS.
PEST MANAGEMENT SCIENCE.
PESTICIDE & TOXIC CHEMICAL NEWS.
PESTICIDE BIOCHEMISTRY AND PHYSIOLOGY.
PESTICIDE CHEMICAL NEWS GUIDE.
PESTICIDE SCIENCE.
PESTICIDES.
PESTICIDES MONITORING JOURNAL.
PESTOPICS.
PHOTO INTERPRETATION.
PHOTO LAB INDEX, QUARTERLY SUPPLEMENTS.
PHOTOGRAMMETRIC ENGINEERING AND REMOTE SENSING.
PHYSIOLOGIA PLANTARUM.
PHYSIOLOGICAL AND MOLECULAR PLANT PATHOLOGY.
PHYSIOLOGICAL ENTOMOLOGY.
PHYSIOLOGICAL PLANT PATHOLOGY.
PHYSIOLOGICAL REVIEWS.
PHYSIOLOGICAL ZOOLOGY.
PHYTOCHEMISTRY.
PHYTOPARASITICA.
PHYTOPATHOLOGY.
PHYTOPROTECTION.
PIMA'S PAPERMAKER MAGAZINE.
PLANT AND SOIL.
PLANT CELL.
PLANT, CELL AND ENVIRONMENT.
PLANT CELL REPORTS.
PLANT, CELL, TISSUE AND ORGAN CULTURE.
PLANT DISEASE.
PLANT DISEASE REPORTER.
PLANT ENGINEERING.
PLANT MOLECULAR BIOLOGY REPORTER.
PLANT PATHOLOGY.
PLANT PHYSIOLOGY.
PLANT SCIENCE.
PLANT SCIENCE LETTERS.
PLANTA.
POPLAR COUNCIL OF CANADA. NEWSLETTER.
POPULAR PHOTOGRAPHY.
POPULATION ECOLOGY.
PROBE POST.
PROGRESS IN BIOPHYSICS.
PROGRESSIVE FISH-CULTURIST.
PROMPTS FOR WORD PROCESSING OPERATORS.
PROTEIN PROFILE.

PUBLIC GARDEN (THE)
PUBLICATIONS DIGEST.
PUBLICATIONS IN FOREST ECOLOGY AND FOREST SOILS.
PULP AND PAPER.
PULP AND PAPER CANADA.
PULP AND PAPER CANADA. ANNUAL AND DIRECTORY.
PULP & PAPER JOURNAL

QUARTERLY ECONOMIC REVIEW. OTTAWA.
QUARTERLY JOURNAL OF FORESTRY.
QUARTERLY REVIEW OF BIOLOGY.
QUEBEC SOCIETY FOR THE PROTECTION OF PLANTS. REPORT.

RECENT ACHIEVEMENTS AT PETAWAWA.
REMOTE SENSING IN MANITOBA. NEWSLETTER.
REMOTE SENSING OF ENVIRONMENT.
RENEWAL (CANADA-BC FOREST RESOURCE DEVELOPMENT AGREEMENT
REPORT ON BUSINESS MAGAZINE.
REPRODUCTION FERTILITY AND DEVELOPMENT.
RESEARCH AND DEVELOPMENT. BULLETIN.
RESEARCH MEMO.
RESEARCH NOTES. B.V. FOREST SERVICE.
RESEARCHES ON POPULATION ECOLOGY.
RESIDUE REVIEWS.
RESILOG.
RESTORATION & MANAGEMENT NOTES.
RESTORATION ECOLOGY.
REVIEW OF AGRICULTURAL ENTOMOLOGY.
REVIEW OF APPLIED ENTOMOLOGY. SERIES A. AGRICULTURAL.
REVIEW OF APPLIED ENTOMOLOGY. SERIES B. MEDICAL AND VETERINA
REVIEW OF APPLIED MYCOLOGY.
REVIEW OF MEDICAL AND VETERINARY ENTOMOLOGY.
REVIEW OF PLANT PATHOLOGY.
REVIEWS OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY.
ROTHAMSTED EXPERIMENTAL STATION, HARPENDEN, ENGLAND. REPO
ROYAL ENTOMOLOGICAL SOCIETY OF LONDON. PROCEEDINGS (A). GE
ENTOMOLOGY.
ROYAL ENTOMOLOGICAL SOCIETY OF LONDON. PROCEEDINGS (B). TA
ROYAL ENTOMOLOGICAL SOCIETY OF LONDON. TRANSACTIONS.
ROYAL METEOROLOGICAL SOCIETY. QUARTERLY JOURNAL.
ROYAL MICROSCOPICAL SOCIETY. JOURNAL.
ROYAL SOCIETY OF LONDON. PROCEEDINGS. SERIES B. BIOLOGICAL SC

SAFETY CANADA.
SAS COMMUNICATIONS.
SCANDINA VIAN JOURNAL OF FOREST RESEARCH.
SCIENCE.
SCIENCE DIMENSION.
SCIENCE FINDINGS.
SCIENCE NEWS. (WASHINGTON, D.C.)
SCIENTIFIC AGRICULTURAL SOCIETY OF FINLAND. JOURNAL.
SCIENTIFIC AGRICULTURE.

SCIENTIFIC AMERICAN.
SCOTTISH FORESTRY.
SEASONS.
SELECTED ECONOMIC INDICATORS. FORESTRY SECTOR. ONTARIO. NEW
SEMINARS IN VIROLOGY.
SER NEWS.
SILVA FENNICA.
SILVICULTURAL OPERATIONS NEWSLETTER. (FERIC).
SILVICULTURE. THE JOURNAL OF THE NEW FOREST.
SIMULATION.
SIP. (SOCIETY FOR INVERTEBRATE PATHOLOGY). NEWSLETTER.
SKOGEN.
SMALL SCALE FORESTRY.
SOCIAL SCIENCES IN FORESTRY.
SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE. PROCEEDINGS
SOFTWARE CANADA.
SOIL BIOLOGY AND BIOCHEMISTRY.
SOIL SCIENCE.
SOIL SCIENCE SOCIETY OF AMERICA. JOURNAL.
SOIL SCIENCE SOCIETY OF AMERICA. PROCEEDINGS.
SOILS AND FERTILIZERS.
SOLUTIONS: THE CFS NEWSLETTER.
SOUTH AFRICAN FORESTRY JOURNAL.
SOUTHERN JOURNAL OF APPLIED FORESTRY.
SOUTHERN WEED SCIENCE SOCIETY. PROCEEDINGS.
SOURTHERN WEED SCIENCE SOCIETY. RESEARCH REPORT.
SPECIAL LIBRARIES.
SPILL TECHNOLOGY NEWSLETTER.
STAIN TECHNOLOGY.
STATE-OF-THE-ENVIRONMENT REPORTING. NEWSLETTER.
STORKIA.
STUDIES IN MYCOLOGY.
SUO.
SURVEY BULLETIN. G.L.F.R.C.
SUSTAINABLE DEVELOPMENT.
SYSTEMATIC BIOLOGY.
SYSTEMATIC ENTOMOLOGY.
SYSTEMATIC ZOOLOGY.

TALL TIMBERS CONFERENCE ON ECOLOGICAL ANIMAL CONTROL BY H.
MANAGEMENT. PROCEEDINGS.
TALL TIMBERS ECOLOGY AND MANAGEMENT CONFERENCE. PROCEEDINGS
TALL TIMBERS FIRE ECOLOGY CONFERENCE. PROCEEDINGS.
TALL TIMBERS RESEARCH STATIOIN. BULLETIN.
TALL TIMBERS RESEARCH STATION. MISC. PUBLICATION.
TAPPI.
TECHNICAL COMMUNICATION. JOURNAL OF SOCIETY FOR TECHNICAL
COMMUNICATION.
TECHNICAL NOTE. FOREST PEST MANAGEMENT INSTITUTE.
TECHNICAL REFERENCE. HERBICIDES.

THEORETICAL AND APPLIED GENETICS.
THEORETICAL POPULATION BIOLOGY.
THROUGH THE BRANCHES.
TIMBER BULLETIN.
TIMBERLINES.
TISSUE AND CELL.
TISSUE CULTURE ASSOCIATION MANUAL.
TISSUE CULTURE BIBLIOGRAPHY.
TORONTO COMPUTES!
TORREY BOTANICAL CLUB. BULLETIN.
TOXICOLOGY AND APPLIED PHARMACOLOGY.
TRANSFER LINE.
TREE PHYSIOLOGY.
TREE PLANTERS' NOTES.
TREE TALK.
TREES. (JOURNAL OF THE MEN OF TREES).
TREES AND PEOPLE.
TREES ARE NEWS. (JOURNAL OF THE MEN OF TREES).
TRENDS IN BIOCHEMICAL SCIENCES. REFERENCE EDITION.
TRENDS IN ECOLOGY & EVOLUTION.
TRENDS IN ECOLOGY & EVOLUTION. REFERENCE EDITION.
TRENDS IN GENETICS.
TRIPOD (THE).
TROPICAL PEST MANAGEMENT.

ULERNEWS.
ULTRAMICROSCOPY.
UNASYLVA.
UNB FORESTRY FOCUS.
URBAN FORESTS NEWS.

VAX PROFESSIONAL.
VIROLOGY.
VIROLOGY ABSTRACTS.
VIROLOGY AND AIDS ABSTRACTS.
VIRUS RESEARCH.
VMAP REPORT (THE).

WAPAHKE. FIRST NATION FORESTRY PROGRAM NEWSLETTER FOR QUEBEC
WATER RESOURCES BULLETIN.
WATER RESOURCES RESEARCH.
WAWATAY NEWS.
WEATHER.
WEEDD ABSTRACTS.
WEED RESEARCH.
WEED SCIENCE.
WEED TECHNOLOGY.
WESTERN JOURNAL OF APPLIED FORESTRY.
WESTERN SOCIETY OF WEED SCIENCE. PROCEEDINGS.
WESTERN SOCIETY OF WEED SCIENCE. RESEARCH PROGRESS REPORTS.
WHAT THEY SAY ABOUT FORESTRY ON THE HILL.
WILDFIRE.

WILDFIRE NEWS & NOTES.
WILDFIRE STRIKES HOME.
WILDLIFE MONOGRAPHS.
WILSON BULLETIN. (WILSON ORNITHOLOGICAL SOCIETY).
WINDSPEAKER.
WOOD AND WOOD PRODUCTS.
WOOD TECHNOLOGY.
WOODLAND REVIEW.
WOODLANDS REVIEW.
WOODLANDS SECTION INDEX.
WOODY POINTS.
WORKING SMARTER WITH MICROSOFT EXCEL.
WORKING SMARTER WITH WORDPERFECT.
WORLD OF AGRICULTURAL AVIATION.

YALE UNIVERSITY. SCHOOL OF FORESTRY. BULLETIN.
YOUR FORESTS.

ZEISS INFORMATION WITH JENA REVIEW.
ZOOLOGICAL RECORD. (PART INSECTA).

Appendix D

ID399 Internship Evaluation Form
(on the following pages)

Superior State University
Department Of Chemistry & Environmental Science
ID399 Internship Description

The Department of Chemistry & Environmental Sciences, within the School of Natural Science, offers internship credit under course number ID399 Internship in _____. The exact title will be based on the nature and scope of the internship, for example Internship in Chemistry, Internship in Environmental Science, etc.

Internships are offered on a credit/no credit basis. Letter grades will not be assigned. The internship experience will not affect the grade point averages, but do count toward total credits for graduation.

The internship is a learning experience in the student's primary area of study and not just a work experience. While work experiences are valuable and add to the resume, academic credit will not normally be granted for work experience. To earn academic credit, the work experience must provide learning opportunities. Internships, which do not provide learning opportunities, will not be approved for academic credit. Documentation that learning has occurred must be provided to the Department for the awarding of credit. If documentation is inadequate, the grade of no credit may be assigned. The minimum number of work hours required for each academic credit is 45. Some internships may require more than 45 hours of work per academic credit when the learning opportunities are insufficient within the work setting. The maximum number of academic credits for internship, which may be applied through ID399 in the Department of Chemistry, is 4.

The internship will be reviewed by a panel of faculty members who will assess the quality and quantity of learning objectives identified in the application. The student, working with the department chair and worksite supervisor should provide sufficient information in the internship plan relating learning opportunities to work tasks in order to allow the review panel adequately evaluate the application. The Review Panel may return the application for additional information when incomplete or learning outcomes are not clearly specified.

Internships may be offered with or without remuneration. The matter of remuneration is between the intern and the employer. Remuneration is outside the scope of the Application and the approval process. While the faculty supports paid internships, compensation is not a consideration for granting of academic credit.

Lake Superior State University
Department of Chemistry & Environmental Sciences
Internship Application

Instructions to the Students:

1. Read the application packet completely to understand the requirements for receiving academic credit for internship experiences.
2. Identify a potential worksite where the internship experience may be offered. Identify tentative learning objectives.
3. Meet with the Department Chairperson to determine if your learning objectives are consistent with your degree and program goals. The department chair will contact the Dean or the Associate Provost and Scheduling Office to set up the course ID for you to register after the application materials are completed and approved.
4. Identify and meet with the prospective worksite supervisor. Determine if the employer is willing to offer the internship, provide learning opportunities and work with you and the department chairperson in the development of the internship plan. You are advised to discuss compensation early in the process. Provide the worksite supervisor a copy of the Internship Description and Information for Internship Supervisors sheet.
5. Complete the Internship Application Form. Obtain the required signatures from the department chair and worksite supervisors. You should be working closely with both individuals to develop the internship plan. (If the employer has established policies and procedures regarding the offering of internships and has developed forms for internal use, please check with the department to determine if these forms may be used in lieu of all or part of the Internship Application Form.
6. Submit the completed application to the department chair in time for evaluation by the departmental faculty and for enrollment in the course before the internship begins. When the application is approved a course and section number will be assigned and you may then enroll for credit.
7. Follow the approved internship plan. Obtain the Supervisor Evaluation form upon completion of the internship and submit the required documentation for evaluation to the department chair within one week of the end of the grading period.

Lake Superior State University
Department of Chemistry & Environmental Sciences
Student Internship Application Form

Student Name: _____
(Please provide information which will be current during the internship)

Address: _____

_____

Home Phone: _____ Work Phone: _____

Email: _____

Course ID399 Internship in _____ Credits: _____

Site of Internship: _____

Address: _____

_____

Worksite Supervisor: _____

Worksite Phone: _____

The undersigned parties agree with the internship plan as described in this proposal. The employer agrees to provide supervision and advising to ensure that the student intern receives educational benefit from the internship, and to provide the student and the Department with an evaluation of the student intern's job performance.

Student: _____ Date: _____

Employer: _____ Date: _____

Department Chair: _____ Date: _____

Lake Superior State University
Department of Chemistry & Environmental Sciences
Internship Plan

The student will consult with the departmental chair and the worksite supervisor to develop a plan for the internship. A minimum of 45 hours of worksite experience is required for each unit of academic credit. Additional hours may be required dependant on the nature of the experience. Credit will not be granted without the written approval of the Department and Dean or Associate Provost of the School of Science & Natural Resources. Internships will be graded on a credit/no credit basis. Internships are limited to professional opportunities in thee student's major area of study.

Explain below the method of evaluation. Suggested methods include daily or weekly logs, a major paper, worksite supervisor's evaluations, and periodic reports to the departmental supervisor. Specify due dates for any required reports.

A. Evaluation Documentation Required and Due Dates:
(Attach additional pages as necessary).

B. Scheduled work time: _____

C. Describe the work tasks, learning objectives, and estimate number of hours to be Worked in the spaces on the attached form. Use additional sheets as necessary

Lake Superior State University

Department of Chemistry & Environmental Sciences

Learning Outcomes from Internship

Please complete the following table identifying the learning outcomes and anticipated outcomes that this internship will be addressing. Attach additional sheets as necessary.

Work Tasks: Explain the activities that will provide Learning experience	Learning Objectives: explain what will be learned	Number of hours for this activity. Specify any planned reading

Lake Superior State University
Department of Chemistry & Environmental Sciences
Information for Internship Supervisors

The Department of Chemistry offers academic credit for internships which provide opportunities for enhanced learning beyond the normal work experience, and which complement and supplement the students undergraduate course work experiences. The student intern is responsible for submission of all required documentation to gain approval for the experience and to receive academic credit. The department chair is responsible for assigning the grade for the course (determining, in consultation with the faculty, if academic credit will be granted).

The worksite supervisor is responsible for the following:

1. meeting with the student and helping to develop work tasks, which will provide learning opportunities:
2. completing the worksite evaluation form and discussing this evaluation with the student intern near the completion of the internship; and
3. providing guidance and feedback to the student intern and discussing the intern's progress with the department chairperson.

The student should present the employer the Internship Application form, and seek your assistance in identifying appropriate educational outcomes from the internship experience. These outcomes should be incorporated into the internship plan, with the appropriate measures of satisfactory progress. The employer is asked to sign and return the form for confirmation to the department, a copy will be returned to the employer after the departmental Review Committee evaluates the application. The Department of Chemistry provides evaluation forms for the internship. If the employer has established policies and procedures regarding the offering of internships, and has developed forms for internal use, please contact the department chair to determine if the employer's forms may be used in lieu of all or part of the Internship Application and/or Evaluation Forms.

Lake Superior State University
Department of Chemistry & Environmental Sciences
Internship Evaluation Form

Instructions to Supervisor: Please rate your student intern using this form. Meet with the student to discuss your evaluation and obtain the intern's signature. Feel free to add additional descriptions of the intern's work in the table and rate them.

Intern: _____

Worksite: _____

Internship in _____, ID399 for _____ credits
(Students must complete a minimum of 45 hours in relevant learning experiences per credit – see the Internship Description for more information)

Description	Superior	Above Average	Average	Below Average	Poor	N/A
Attendance, Punctuality						
Understanding of work role						
Relationship with clients/customers/colleagues						
Dependability						
Attitude						
Quality of work						
Discretion, Judgement						
Ethical conduct						
Confidentiality						
Oral & Written Communication skills						
Scientific/Technical knowledge						
Scientific/Technical skills						

Lake Superior State University
Department of Chemistry & Environmental Sciences
Internship Evaluation Form-page 2

Based on the student internship work experience:

1. What are the intern's greatest strengths?

2. What areas should the intern work on continuing to develop?

3. Additional comments and suggestions. (Feel free to comment on the strength of the internship experience, recommendations to strengthen the preparation of students, the availability of future internships, etc)

I recommend credit/no credit (circle one) be given for this internship experience. The student has completed the required number of hours in work related learning experiences, fulfilled the objectives of the internship plan, and participated in review and evaluation of the internship experience.

Worksite Supervisor's signature: _____ Date: _____

I have discussed this report and understand the evaluation

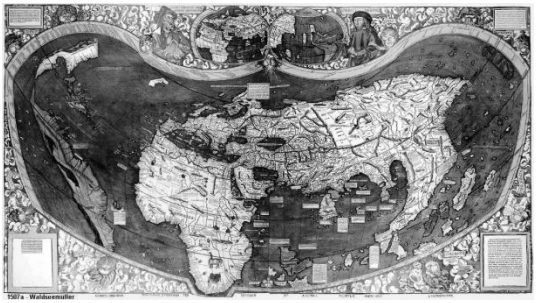
Student's signature: _____ Date: _____

Appendix E

Course Syllabi
(on following pages)

BIOL126 Interpretation of Maps and Aerial Photographs

(1,3) 2 Credits



Waldseemuller Map

Pre- or corequisite: MATH 102 or higher

Instructor(s): **Elisa Muto**
330 Crawford Hall
(905) 635-2387
emuto@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
	11-1	10-11	12-2	

Required Texts:

The Language of Maps. 14Th Ed. 1991. Gersmehl, Philip J. National Council for Geographic Information

Interpretation of Airphotos and Remotely Sensed Imagery. 1997. Arnold, Robert H. Prentice-Hall, Inc.

Required Materials:

1 Sanford Vis à Vis Fine Point **WET ERASE** Marker
2 Sanford Sharpie Ultrafine Point **PERMANENT** Markers (2 different colors)
Ruler 1/50" graduations

Course Description:

Introduction to use and interpretation of 1:24,000 USGS topographic maps. Topics covered include: determination and calculation of scale, map coordinate systems, projections, and locating features using the General land Office Survey System. Local landforms will be interpreted from aerial photography at a variety of scales and correlated with map interpretations. Land use and cover will be determined using both black & white and color infrared photography.

Course Goals:

When you finish this course you should have confidence in your ability to interpret; measure distance, direction, and areas; convert scales, and identify common local landforms from maps. You should also develop good map and compass skills, be able to utilize measurements taken off a map, and construct a map from geospatial information.

Student Learning Outcomes: Students who successfully complete this course will be able to demonstrate their ability to:

- make measurements on maps and aerial photographs,

- determine scales of maps and aerial photographs,
- identify major vegetation types & land uses from aerial photographs,
- properly select aerial photos for a study area,
- discuss the strengths and limitations of a particular photographic scale or format for interpretation,
- make land use classifications off of aerial photographs, and
- interpret color infrared photography.

Grading Scale and Policies:

Grades will be calculated as a straight percentage of the total points assigned.

Point Values:

Laboratory Quizzes	175 Points
Lecture Quizzes	125 Points
Map Project	100 Points
Midterm Exam	100 Points
Level II Overlay	100 Points
Level IV Overlay	75 Points
Final Exam	200 Points
Total	875 Points

Grading Scale:

A+	95-100%	B+	87.5-90%	C+	77.5-80%	D+	67.5-70%
A	92.5-95%	B	82.5-87.5%	C	72.5-77.5%	D	62.5-67.5%
A-	90-92.5%	B-	80-82.5%	C-	70-72.5%	D-	60-62.5%
						F	< 60%

***Ground Rules*:**

1. Completing assignments on time and keeping up with the class material is important for success in this course and in college. Late assignments **will not** be accepted except for legitimate **pre-approved** reasons as determined by the instructor. Examples of legitimate reasons are: severe illness, death in family, etc.
2. Use of head phones, cell phones and hats during exams is prohibited.
3. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class for the day and this will count as an absence.

University Policies and Statements:

Policies, including those below, are posted on the Provost's website: www.lssu.edu/provost/forms.

- Online and Blended Course Attendance Policy
- The Americans with Disabilities Act & Accommodations

- IPASS (Individual Plan for Academic Student Success)

Please refer to the Registrar's website: http://www.lssu.edu/registrar/ for information on academic integrity, Add/Drop course policies, etc.

Tentative Semester Schedule and Assignments

	Topic	Reading Assignment
Week 1 August 28	LECTURE: Introduction, Language of Maps, Spatial Concepts, Public Land Survey System (PLSS) LAB: Conversions, Map Scale, Map Message, 1:24000 Topographic Maps	Gersmehl p. 1-9; 38-41; 77-80; & 130-131
Week 3 September 11	LECTURE: Scale, Projections, & Map Generalizations I LAB: Measurement of Distance, Area, and Direction on 1:24000 Topographic Maps ***(35 point Quiz on week 1***)	Gersmehl p. 21-37; 44-45; & 175-180
Week 4 September 18	LECTURE: ***25 point Quiz***, Map Generalizations II LAB: Map Project I ***OUTDOOR LAB*** ***(50 point Quiz on week 3)***	Gersmehl p. 10-21
Week 5 September 25	LECTURE: Thematic Maps LAB: Map Project II ***OUTDOOR LAB***	Gersmehl p. 101-129
Week 6 October 2	LECTURE: Topographic Position LAB: Care and Handling of Old Maps	Gersmehl p. 48-59
Week 7 October 9	LECTURE: Map Interpretation ***50 point Quiz***, LAB: Landform Interpretation ***(15 point Quiz***)	Gersmehl p. 60-76; 92-98; 145-147; & 156-160

Week 8 October 16	LECTURE: Review LAB: ***Midterm Examination 100 Points*** ***Map Project due 100 points***	
Week 9 October 23	LECTURE: Electromagnetic Spectrum, Spectral Signatures, & Image Interpretation LAB: Photomosaic, Stereo Landforms, Map to Photo Correlation, Index Use	Arnold p. 1-6; 14-22; & 59-66

October 23th LAST DROP DAY

Week 10 October 30	LECTURE: Aerial Interpretation Tests (UNGRADED!) Photogrammetry (I) LAB: Photogrammetry, scale, atlas grid, photo interpretation ***(25 point Quiz on week 9 lab)***	Arnold p. 7-13; 23-35
Week 11 November 6	LECTURE: Photogrammetry (II) LAB: Level II Photo Interpretation/Level II Map Of Sault Sainte Marie ***(25 point Quiz on week 10 lab)***	Arnold p. 36-43; 164-192

Spring 2013 Registration

November 5th Seniors (88+ Credits)
November 6th Juniors (56+ Credits)
November 7th Sophomores (26+ Cedits)
November 8th Freshmen (<26 Credits)

Week 12 November 13	LECTURE: ***50 point Quiz*** LAB: Work on Level II Map Of Sault Sainte Marie	
Week 13 November 20	LECTURE: Color Infrared Photography LAB: ***DUE: Level II Map Of SSM (100 points***) Level IV Introduction and Vegetative survey using CIR, Use of Photo Indexes	Arnold p. 50-58
	LECTURE:	

Week 14 November 27	Multiple Image Interpretation LAB: Work on Level IV Project	Arnold p. 66-77
Week 15 December 4	LECTURE: Interpretation of Earth features from space LAB: ***DUE: Level IV Vegetative survey (75 points)*** **FINAL EXAM 200 points**	Arnold p. 78-104

BIOL131 General Biology: Cells 4 Credits

Prerequisites: MATH086, ENGL091

Instructor(s): Dr. Barbara I. Evans bevans@lssu.edu
312 Crawford Hall (906) 635-2164

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
	2-4 PM	2-4 PM		TBA

Required Texts: **Lecture:** Principles of Life. Hillis et al., 2011 (Vol. 1)
Lab: BL131 General Biology Lab manual (Kirkpatrick and Evans) Blackboard
Scholar's Notebook: You will require a duplicate bound lab notebook.

Course Description: This course is an introduction to the cellular aspects of general biology. This course will provide an overview of cellular biology and serve as a framework for further biological studies. Topics to be covered include basic chemistry of the cell, function of cellular organelles, cellular metabolism including respiration and photosynthesis, the cell cycle, mitosis, meiosis, simple transmission genetics, introduction to molecular and developmental biology. The laboratory introduces the student to inquiry based scientific method.

Course Objectives: At the conclusion of BIOL131 students will:

- Have acquired a broad, cellular-based overview of the living world and will be able to:
  - Identify and describe the function of the major cellular components
  - Explain important cellular processes including and related to: mitosis, meiosis, fermentation, respiration, photosynthesis, and genetic inheritance
- Have developed skills in scientific thinking, observation, and deduction through:
  - Conducting and reflecting upon weekly laboratory activities
  - Working with a group to design and conduct your own experiment, including collection, analyses, interpretation, and presentation of the data

Laboratory attendance is mandatory. If you miss more than three labs, you will receive an F for the lab; if you fail lab, you automatically fail the course. No one will be permitted to make up a lab; however, if you are unable to avoid missing your regularly scheduled lab, you may attend one of the other labs offered that same week, provided you obtain permission from both your laboratory instructor and the instructor of the laboratory you would like to attend.

General Education Objectives: This course is designed to meet the Natural Science General Education Outcome. Students will be able to incorporate empirical evidence in the analysis of the causes and consequences of natural phenomena.

Specifically, students will be able to:

1. Address current issues in biological sciences by examination of real world situations. In lab, students will be introduced to the scientific method and have the opportunity to apply these techniques to answering their own questions in the biological sciences.

Grading Scale and Policies:

In class quizzes	50%
Lecture Final Exam	20%
Lab (you must pass the lab to pass the course)	30%

Grading Scale:

97-100	A+	70-77	C
93-97	A	68-69	D+
90-91	A-	63-67	D
88-89	B+	60-62	D-
82-87	B	0-59	F
80-81	B-		
78-79	C+		

***Course Policies*:**

4. Completing assignments on time and keeping up with the class material is important for success in this course and in college. Late assignments **will not** be accepted except for legitimate **pre-approved** reasons as determined by the instructor. Examples of legitimate reasons are: severe illness, death in family, etc.
   LSSU sanctioned travel related absences (athletics, conference presentations, conference attendance) are approved by the Provost. Instructors are expected to accommodate students in these situations. However, students are expected to make arrangements with the instructor before the travel occurs. Failure to do so may result in "F" grades being assigned for the missed work.
5. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
6. Use of head phones, cell phones and hats during exams is prohibited.
7. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student may be asked to leave the class for the day and this will count as an absence.

University Policies and Statements:

Policies, including those below, are posted on the Provost's website: www.lssu.edu/provost/forms.

- Online and Blended Course Attendance Policy
- The Americans with Disabilities Act & Accommodations
- IPASS (Individual Plan for Academic Student Success)

Tentative Course Outline

Class Meeting and Exam Schedule	Text (Ch, pgs)
Introduction to Biological Concepts and Research	1: 1-16
Life, Chemistry, and Water	2: 16-34
Nucleic Acids, Proteins & Enzymes	3: 34-56
Exam 1 Sept. 12 (Chapter 1-3)	
Cells	4: 56-78
Cell Membranes	5: 78-100
Energy Pathways	6: 100-124
Exam 2 Oct. 3 (Chapter 4-6)	
Cell Cycle	7:124-144
Inheritance	8: 144-165
DNA	9: 165-187
Exam 3 Oct. 24 (Chapter 7-9)	
DNA to Protein	10: 187-208
Gene Expression	11: 208-226
Genomes	12: 266-244
Exam 4 Nov. 14 (Chapter 10-12)	
Biotechnoloy	13: 244-263
Genes, Development	14: 263-287
Exam 5 Dec. (Chapter 13,14)	

Comprehensive Final Exam – Wed. Dec. 12, 12:30 - 2:30 pm

BIOL 131: General Biology, Cells

Week	Lab	Laboratory Schedule	Appendix
8/27-29	1	Scientific Inquiry & Experimental Design	I
9/3-5		Labor Day No labs this week (Check your plants!)	
9/10-12	2	The Microscope	VII
9/17-19	3	Observing the Microscopic World	VIII
9/24-26	4	Use of Equipment	V & VI
10/1-3	5	Data Analysis (Lab 5 Begin Report #1)	III & IV
10/8-10		**Midterm Exam**	
10/15-17	6	DNA Extraction and Techniques (Hand in Lab Report #1; Lab 5)	
10/22-24	7	DNA Amplification and Analysis	
10/29-31	8	Guided Inquiry (Lab 6-7, Begin Lab Report #2)	III
11/5-7	9	Design Open Inquiry Experiment (Begin Lab Report #3; open inquiry)	
11/12-14	9	Start Open Inquiry Experiment (Hand in Lab Report #2; Lab 6-7)	
11/19-22		Thanksgiving No labs this week (Continue open inquiry!)	
11/26-28	9	Complete Open Inquiry Experiment	
12/3-5		**Open Inquiry Presentations and Hand in Open Inquiry Lab Report #3**	

BIOL 132 General Biology II: Organisms (3,2)
4 Credits

Prerequisites: MATH 086, ENGL 091

Instructor(s): Jason M. Garvon, Ph.D.
Crawford 226
(906) 635-2471
jgarvon@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
			9am – 12pm	10am - 12pm

Or by appointment

Required Texts:

Hillis, D.M., D. Sadava, H. C. Heller and M.V. Price. 2012. Principles of Life. Sineaur and Associates Inc. Sunderland, MA, USA. ISBN: 978-1464101731

I-Clicker

Student Lab Notebook – Carbonless Duplicate. Hayden-McNeil.

Course Description:

Students will be presented with the information and tools used to differentiate among the three domains of life on Earth, with emphasis on the Domain Eukarya and its four kingdoms. Additional emphasis will be placed on the kingdoms Plantae and Animalia. Additionally students will learn about the process of scientific investigation through participation in predetermined, guided, and self-directed laboratory experiments.
The lecture portion of this course will be subdivided into three sections:

1) Speciation, evolution, and phylogenetic analysis: In this section the overlying theme is the theory of evolution through natural selection. History of evolutionary thought, life histories of organisms, history of life on Earth, past and modern tools used to determine relatedness of species, and current phylogenetic relationships of organisms on earth are explored. Special introductions to the three Domains will be made, with extra time spent on the Kingdoms Protoctista and Fungi within the Eukaraya.
2) Animal form and function: In this section major evolutionary steps in animals including differences in tissue development, reproductive strategies, locomotion, and maintaining homeostasis will be addressed. Neural and muscular development and function will also be addressed. The major phyla and classes of organisms will be introduced as a means to reemphasize evolution and phylogenetic relationships.
3) Plant form and function: In this section the evolution from aquatic cyanobacteria (and the oxygen revolution) to vascular land plants will be the overlying theme. Within this context major differences among plant groups will be addressed with emphasis on the evolution of water conducting tissues and inherent differences among reproductive strategies. Through this the importance of environmental impacts on species evolution and survival will be emphasized.

Course Objectives: At the conclusion of BIOL 132 students will:

1. Demonstrate comprehension of the fundamentals of evolution through natural selection
2. Show competency in biologic classification and phylogenetics
3. Recognize unique physical characteristics of the major groups of life on Earth
4. Differentiate among major groups of animals and plants based on morphological structures
5. Demonstrate comprehension of major physiological processes of animals and plants
6. Use empirical evidence to answer a question about the natural world

Grading Scale and Policies:

Grading for this course will be based on exams, quizzes, and laboratory assignments. Point values for this course can be found in the table below. The course is based on 950 points yet there are 985 possible. Students may choose to complete the designated assignments as needed to make up points lost during exams or assignments. It is the student's responsibility to calculate their scores as a means of monitoring their progress, even though the Instructor will keep up to date grades. The minimum points needed for each letter grade are listed below the table.

Point Values:

Point Source	Points Possible	Student's Score
Exam 1 (9/24)	100	/100
Exam 2 (10/15)	100	/100
Exam 3 (11/5)	100	/100
Exam 4 (12/3)	100	/100
Final Exam	200	/200
I-Clicker	100	/100
Book review* (by 11/22)	25	/25
Learning Reflection*	10	/10
Lab**	250	/250
Total Points	**985**	**/950**

*These assignments are optional and details of requirements will be provided by the third week of class
** See lab section of syllabus for breakdown of points

GRADING SCALE (minimum total course points needed):

883.5 = A	826.5 = B+	731.5 = C+	636.5 = D+	<570 = F
855 = A-	788.5 = B	693.5 = C	598.5 = D	
	760 = B-	665 = C-	570 = D-	

***Ground Rules*:**

1. Please note that I will respond to Email and phone messages during my normal business hours, if you email me outside of these hours do not expect an immediate reply.
2. Each student is responsible for all reading material presented in class, including lectures, handouts, reading assignments, and class discussions.
3. If a student misses class, it is up to the student to obtain class notes and materials from another classmate. There will be no unexcused absences when assignments are due. Arrangements must be made prior to class if you cannot attend. If prearrangements are not made the student will not receive credit for the assignment due that day.
4. Instructor-graded assignments will usually be returned to students the following class period. If a student is absent when graded material is returned, it is the student's responsibility to see the instructor to get their graded work during the instructor's office hours.
5. All cell phones, pagers or other electronic devices (watches with alarms) are to be turned off prior to class. These devices cause disturbances to class when activated and negatively impact the learning experience. Violations of this policy will be dealt with on an individual basis.
6. Plagiarism and cheating will not be tolerated. Any student caught cheating will receive an F for the entire course.

***University Policies and Statements*:**

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

HONOR PLEDGE

As a student of Lake Superior State University, you will refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer programs, lab reports, quizzes, tests or exams which are Honor Code violations. Furthermore, you understand and accept the potential consequences of punishable behavior.

EXAM SCHEDULE & IMPORTANT DATES

Exam 1	**Monday, September 24**
Exam 2	**Monday, October 15**
Exam 3	**Monday, November 5**
Exam 4	**Monday, December 3**
Open Inquiry Report & Presentation	**Normal lab time Week of December 3**
Final Exam	**Wednesday, December 12 (12:30 pm)**

Exam Make Up Policy - If you miss an exam it is up to the instructor to decide if you will be able to make it up at a later date. In general a note from the health center or other doctor documenting the reason for missing the exam, other emergencies (family illness or death), or absence due to participation in a university sanctioned event will qualify as a valid excuse. **All make exams will be administered the Friday of final exam week at noon.**

Week	Course Objective	Book Part	Chapters
8/27	1 – Evolution	3	15
9/3	1 – Evolution	3	15
9/10	2 – Phylogenetics	3	16
9/17	1 & 2	3	17 & 18
9/24	3 – Diversity	4	19
10/1	3 – Diversity	4	19
10/8	4 – Plants & Fungi	4	20 - 22
10/15	4 – Plants	5	24 & 25
10/22	4 – Plants	5	26 & 27
10/29	5 – Plants	4	28
11/5	4- Animals	4	23
11/12	4 – Animals	6	29
11/19	4 – Animals	6	31
11/26	5 – Animals	6	39 & 40
12/3	5 – Animals	6 & 7	41 & 42
12/10	Final Exam Week	All above	All above

** Lecture material may be covered more slowly or rapidly than indicated on the syllabus. Exams will cover only material previously covered in lectures.

Laboratory Section

The laboratory section for this course will be based on a proficiency rather than objective based system. As such, students will have to show proficiency in each major subject area in order to receive credit. Proficiency will be determined by the historic B level of performance. There are 12 areas where students will show proficiency, and many will require several levels of proficiency. Obtaining 12 full proficiency ratings will result in an A for lab (and thus 250 points).

Proficiencies

1. Scientific literature awareness and assessment
2. Hardy-Weinberg equation manipulation, and Chi square analysis
3. Fungi and bacteria identification
4. Plant morphology identification
5. Invertebrate dissection
6. Vertebrate dissection
7. Physiological processes
8. Animal behavior evaluation and zooplankton identification
9. Scientific proposal
10. Scientific lab report
11. Scientific presentation
12. Effective group work and participation

Expectations for proficiency levels will be discussed each week prior to lab.

Laboratory Schedule

Week	Topics
8/27	**Introductions, Naturalists Scavenger Hunt**
9/3	**No Labs – Exercise 1 on your own**
9/10	**Exercise 2 & 5–** Dichotomous keys. Discussion of inquiry project. Proficiency example and trial
9/17	**Exercise 4 –** Bacteria and fungi, introduction to quantification
9/24	**Exercise 5 –** Plant diversity, morphology, and evolutionary adaptations
10/1	**Exercise 6 –** Seed plants, seeds, and flower morphology
10/8	**Exercise 10** - Interactions of organisms: Diversity and community ecology
10/15	**Exercise 7 -** Dissection of invertebrates
10/22	**Exercise 8 –** Dissection of vertebrates
10/29	**Exercise 9 –** Physiological processes
11/5	**Exercise 11 –** Introduction to Animal behavior
11/12	**Exercise 12 – Open Inquiry**
11/19	**Exercise 12 – Open Inquiry – No formal labs – Thanksgiving Break**
11/26	**Exercise 12 – Open Inquiry**
12/3	**Presentations and reports due**
12/12	**Final exam week no labs**

******Absence from 3 or more labs will result in an F for the course******

Breakdown of points

You are able to get a potential of 250 points in lab. Each full proficiency is worth 8.3% (or 20.83 points) of the 250 possible lab points. Several proficiencies have multiple levels (you must meet all to receive full credit). The table below will help you to keep track of your lab points.

Proficiency	Level 1	Level 2	Level 3	Level 4
1	Identify/select Sci. article	Summarize Article	**XXX**	**XXX**
2	Equation recognition	Manipulate $P^2 + 2pq + q^2$	Manipulate $p + q$	Complete Chi square
3	Parts of fungi	Major groups of fungi	Major groups of bacteria	Culture techniques
4	Parts of plant	Tissues of plant	Parts of flower	Types of seeds
5	Dissection techniques	Starfish Anatomy	Earthworm anatomy	Crayfish anatomy
6	Dissection techniques	Frog Anatomy	Rat anatomy	Comparative structures
7	Identification of systems	Cardiovascular Function	Respiratory function	Digestive function
8	Identify desired behavior	Identify zooplankton	Design experiment	Analyze Data
9	Lit review	Objective statement	Experimental design	Correct data analysis
10	Lit review & objective	Methods Including data Analysis	Results summary with figures	Relation of results to literature
11	Explanation of Background & objectives	Explanation of methodology	Presentation of data with figures	Explanation of significance of results in scientific context
12	Communicate effectively with group members	Work efficiently	Perform required tasks	Recognize others contributions to achieving group objective

Additional Laboratory Information

You will be working in groups, be sure to do your share of the work, your group members will be grading your contributions at the end of the semester.

Wear appropriate clothing to lab. You will be on your feet most of the time so wear comfortable shoes. You may be dissecting specimens or working in the green house, so wear clothing that can get dirty.

Bring a calculator/laptop to class. We will be performing calculations on a regular basis so be prepared. If you have a laptop and want to bring it you can enter data into excel and perform calculations that way.

BIOL 204 – Microbiology (3,3) 4 Credits

Prerequisites: CHEM 115 and BIOL 131

Meets
Lecture: 8:00-8:50 MWF, 304 Crawford
Lab Section A: 2:00-4:50 W, 230 Crawford
Lab Section B: 9:00-11:50 Th, 230 Crawford
Note: Because bacteria generally take 12-24 hours to grow into visible colonies, it may occasionally be necessary for you to stop by the lab room outside of regularly scheduled class time to observe the results of an experiment.

Instructor: Dr. Martha Hutchens
218 Crawford
906-635-2806
mhutchens@lssu.edu
Office hours: 9:00-10:00 MW, 2:00-3:30 Tu Th, or by appointment.

Course Description This course covers the history and scope of microbiology, microbial structure, growth, nutrition, metabolism, genetics, taxonomy, and control. Mycoplasmas, viruses, and molds will be included, as well as an introduction to genetic engineering and recombinant DNA. Labs will emphasize the identification and cultivation of bacteria and fungi.

Learning outcomes
-Trace key historical contributions to the discipline of microbiology
-Differentiate between microbial groups based on their major characteristics
-Describe major pathological mechanisms of each microbial group
-Perform basic microbiological laboratory procedures; interpret results
-Apply principles of microbiology to real-life situations
-Relate principles of immunology to microbial diseases

Required Textbooks
Microbiology: An Introduction. Totora, Funke, and Case, 11th ed. Pearson © 2013. ISBN: 10:0-321-73360-6
Lab Manual: Laboratory Experiments in Microbiology. Johnson and Case, 10th ed. ISBN: 10:0-321-79438-9

Components of Grade
Your final grade will be based on exams (five of them, plus a comprehensive final); laboratory worksheets, and other assignments as announced by the instructor.

Component	Weight (% of final grade)
Exams 1-5	50
Comprehensive final	10

Lab worksheets (all together)	20
Other assignments (all together)	20

Grading Scale: 97-100% A+
92-96% A
90-91% A-
87-89% B+
82-86% B
80-81% B-
77-79% C+
72-76% C
70-71% C-
67-69% D+
62-66% D
60-61% D-
0-59% F

Exam Dates
Exam 1: September 17, 2012
Exam 2: October 5, 2012
Exam 3: October 22, 2012
Exam 4: November 9, 2012
Exam 5 + comprehensive final: TBA, week of Dec. 10-14, 2012

Due Dates
Lab exercise worksheets are due at the beginning of lab the week following completion of the exercise. Late assignments will not be accepted except for legitimate reasons pre-approved by the instructor. Due dates for other assignments will be announced at the time the assignment is given.

Attendance Policy
Attendance in lecture is strongly encouraged. Attendance in laboratory sessions is MANDATORY. There will be a sign-in sheet each lab. Absences for legitimate reasons, pre-approved by the instructor, will be excused. See the instructor to arrange make-up of exercises missed due to an excused absence. The penalty for an unexcused absence is that no credit will be given for worksheet pertaining to that lab.

Rules
1. Late assignments and missed exams will not be accepted, except for legitimate pre-approved reasons, as determined by the instructor.
2. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
3. Cell phones must be silenced and stowed during class.
4. Use of head phones or cell phones during exams is prohibited. Use of calculators, provided they are NOT part of a cell phone or computer, is permitted during exams.
5. In the laboratory portion of the course, follow all laboratory safety rules and instructions.
6. Students are expected to comply with the instructor's directives and exhibit professional behavior.

Tips
1. Check the BIOL 204 Blackboard page for class announcements, lecture objectives, and lecture slides.

2. **Exam content will be based on the lecture objectives as posted on Blackboard for each class session. That is, if it's in the lecture objectives, it's fair game for the exam. If you can answer a particular lecture objective without reference to your notes, you should be able to answer the exam question(s) on that topic, too.**

3. Pay attention in lecture for announcements regarding additional assignments, modifications to the class schedule, and ***modifications to upcoming lab exercises***.

University Policies and Statements:

Policies, including those below, are posted on the Provost's website www.lssu.edu/provost/forms:

- Online and Blended Course Attendance Policy
- The Americans with Disabilities Act & Accommodations·
- IPASS (Individual Plan for Academic Student Success)

The link to the Provost's webpage provides all the details

HONOR PLEDGE

As a student of Lake Superior State University, you have pledged to support the Student Honor Code of the College of Engineering & Technology. You will refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer programs, lab reports, quizzes, tests or exams which are Honor Code violations. Furthermore, you understand and accept the potential consequences of punishable behavior.

Lecture Schedule (Tentative)

Exam dates are firm. Everything else is subject to change at instructor's discretion.

Week	Date	Chapters covered	Topic(s)
	27-Aug	-, 3	Lab safety, microscopes
1	29-Aug	1, 3	History,microscopes
	31-Aug	4	functional anatomy of prokaryotic, eukaryotic cells
2	5-Sep	4	
	7-Sep	5	metabolism
	10-Sep	5	
3	12-Sep	6	microbial growth
	14-Sep	6	
	17-Sep	Exam 1 (ch. 1, 3-6)	
4	19-Sep	7	control of microbial growth
	21-Sep	7,20	antimicrobial drugs
	24-Sep	7,20	
5	26-Sep	8	microbial genetics
	28-Sep	8	
	1-Oct	9	recombinant DNA and biotechnology
6	3-Oct	9	
	5-Oct	Exam 2 (ch. 7-9, 20)	

	8-Oct	10	classification of microorganisms
7	10-Oct	11	bacterial groups
	12-Oct	12	fungi, algae, protozoa, parasites
	15-Oct	12	
8	17-Oct	13	viruses, viroids, prions
	19-Oct	13	
	22-Oct	Exam 3 (ch. 10-13)	
9	24-Oct	14	principles of disease and epidemiology
	26-Oct	15	microbial mechanisms of pathogenicity
	29-Oct	16-18	immunology
10	31-Oct	16-18	
	2-Nov	16-18	
	5-Nov	21	skin and eye diseases
11	7-Nov	22	nervous system diseases
	9-Nov	Exam 4 (ch. 14-22)	
	12-Nov	23	cardiovascular diseases
12	14-Nov	24	respiratory diseases
	16-Nov	25	digestive tract diseases
13	19-Nov	25	
	26-Nov	26	urinary/reproductive tract diseases
14	28-Nov	27	soil and water microbiology
	30-Nov	27	
	3-Dec	28	applied and industrial microbiology
15	5-Dec	28	
	7-Dec	TBD	TBD
Finals week	10-Dec--14-Dec.		Exam 5 + comprehensive final

Lab Schedule (tentative)

Week	Lab #
1	1, 2
2	3, 4
3	5, 6, 7
4	8, 9
5	11, 12
6	14, 15, 16, 17
7	rapid id, 19, genetics
8	23, 24, 25, 26
9	52, 53
10	soil
11	54
12	immunology, bioremediation
13	No lab- Thanksgiving
14	33, 34, 35

BIOL 220 - GENETICS (3, 3) 4 Credits

Prerequisites: BIOL 131, CHEM 116 and **either** BIOL250 **or** MATH207

Instructor: Instructor Name: Nancy S. Kirkpatrick, Ph.D.
Office Number: CRW228
Phone Number: x 2894
E-mail address: nkirkpatrick@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
10:00-10:50 a.m. 3:00-3:50 p.m.*	1:00-1:50 p.m.	11:00-11:50 a.m.	2:00-2:50 p.m.*	9:00-9:50 a.m.

* Problem solving sessions in CRW231 (genetics lab)

Required Texts: Genetics Essentials: Concepts & Connections by Benjamin A. Pierce, Freeman Publ.
The Immortal Life of Henrietta Lacks by Rebecca Skloot, Crown Publ.
Biology Labs Online: http://www.biologylab.awlonline.com/ Genetics packet $20.00

Course Description: A study of the nature, transmission, recombination and function of hereditary material in animals, plants and microorganisms. The lecture includes Mendelian, molecular and population genetics. The laboratory includes exercises in Mendelian genetics, cytogenetics, recombinant DNA and computer simulations of population genetics.

Course Goals: The overall goal of this course is to recognize the different subdisciplines of genetics and to appreciate the complexity of living organisms at the molecular level.

Course Objectives: At the conclusion of BIOL 220 students will be able to:

1. Solve and analyze genetics problems at the multi-gene level and analyze results statistically
2. Identify parts of a chromosome and point out variations in chromosome structure and number
3. Understand the cell cycle and the processes of mitosis and meiosis
4. Construct genetic maps based on recombinant frequencies
5. Recognize and discuss the essential elements of DNA replication, RNA transcription, and protein translation
6. Perform simple population problems using the Hardy-Weinberg equation

Grading Scale and Policies:
There will be five hourly exams and a cumulative final exam worth 10% each. The test format will be multiple choice and problem solving.

Make-Up Exam Policy: You must have a very good excuse to **not** take an exam at the regularly scheduled time. If you have to miss an exam, you must inform me ahead of time either in person, by phone or voice mail, or via e-mail. The make-up exam **must** take place within one week's time of the original test date. All make-up tests should be scheduled with the Testing Center in the Library. Appointments can be made online at: http://www.lssu.edu/testingservices/

Homework: Each week several questions and/or problems from the current chapter will be assigned. You will find all homework assignments on Blackboard. Completion of all homework assignments will be worth 7.5% of your final grade. We will often work out homework problems in class so be sure to bring your textbook to class with you. Also, the Monday 3:00 and Thursday 2:00 office hours will be held in CRW231 (genetics) lab and be devoted to help with homework problems.

Term Paper: This semester we will read The Immortal Life of Henrietta Lacks. Each of you will write a 5-10 page term paper over one aspect of this book. More on this later. The term paper will be worth 7.5% of your final grade.

Laboratory: The lab will constitute 25% of your total course grade. You must pass the lab in order to pass the class. The laboratory syllabus will explain the lab in more detail. Feel free to ask about homework problems in lab.

Grade Determination:		
	4 exams @ 10% ea.	50%
	Comprehensive Final	10%
	Laboratory	25%
	Term Paper	7.5%
	Homework	7.5%
		100%

***Grading Scale*:**

100-98 – A+	89-87 – B+	79-77 – C+	69-67 – D+	59 & below - F
97-93 – A	86-83 – B	76-73 – C	66-63 – D	
92-90 – A-	82-80 – B-	72-70 – C-	62-60 – D-	

***Ground Rules*:**

8. Completing assignments on time and keeping up with the class material is important for success in this course and in college. Late assignments **will not** be accepted except for legitimate **pre-approved** reasons as determined by the instructor. Examples of legitimate reasons are: severe illness, death in family, etc.
9. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
10. Use of head phones, cell phones and hats during exams is prohibited.
11. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class for the day and this will count as an absence.

University Policies and Statements:

Policies, including those below, are posted on the Provost's website www.lssu.edu/provost/forms:

- Online and Blended Course Attendance Policy
- The Americans with Disabilities Act & Accommodations·
- IPASS (Individual Plan for Academic Student Success)

Tentative Course Outline*
Pierce: Genetics Essentials: Concepts & Connections

Ch. 1 - Introduction to Genetics

Ch. 2 - Chromosomes & Cellular Reproduction

Ch. 3 - Basic Principles of Heredity

EXAM I –Fri. Sept. 14

Ch. 4 - Extension & Modifications of Basic Principles

Ch. 5 - Linkage, Recombination & Eukaryotic Gene Mapping

TOPIC DUE for TERM PAPER – Mon. Oct. 1

EXAM II – Fri. Oct. 5

Ch. 7 – Chromosome Variation

Ch. 8 - DNA: The Chemical Nature of the Gene

EXAM III – Mon. Oct. 22

Ch. 9 - DNA Replication & Recombination

Ch. 10 – From DNA to Proteins: Transcription & RNA Processing

ROUGH DRAFT of TERM PAPER DUE – Fri. Nov. 2

EXAM IV – Wed. Nov. 7

Ch. 11 - From DNA to Proteins: Translation

Ch. 12 - Control of Gene Expression

EXAM V – Wed. Nov. 28

TERM PAPER DUE – Fri. Nov. 30

Ch. 14 – Molecular Genetic Analysis, Biotechnology & Genomics

Ch. 17 - Population & Evolutionary Genetics

COMPREHENSIVE FINAL EXAM - Monday, December 10 - 10:00 a.m.

**All dates subject to change at discretion of instructor*

BL 220 - GENETICS

LABORATORY SYLLABUS
FALL 2012

INSTRUCTOR: Dr. Nancy S. Kirkpatrick
220 Crawford Hall
635-2894

OFFICE HOURS:

Monday	Tuesday	Wednesday	Thursday	Friday
10:00-10:50 a.m. 3:00-3:50 p.m.*	1:00-1:50 p.m.	11:00-11:50 a.m.	2:00-2:50 p.m.*	9:00-9:50 a.m.

- Problem solving sessions in genetics lab (CRW231)

REQUIRED ONLINE LAB MANUAL: Biology Labs Online: http://www.biologylab.awlonline.com/
You are required to purchase an online subscription for the "Genetics" package. The cost is $20. You may share the cost with your lab partner.

OBJECTIVES: To understand the basic concepts of heredity and molecular biology through problem solving and experimentation as explained below.

LAB NOTEBOOK: During the semester, you will be conducting mating experiments using "FlyLab" from Biology Labs Online. The program comes with a notebook feature. Each week you will complete the assignments and record them in the online notebook. Save the notebook to a flashdrive or e-mail it to yourself before the end of class. Print out hard copies of the online notebook and keep all exercises in a binder.

During the first half of the semester, we will also be doing exercises and problems, which will further enhance your understanding of classical genetics such as mitosis and meiosis, probability, chi-square, and blood-typing, Keep all your notes and handouts from these exercises and include them in your binder. There will be a **quiz** midway through the semester covering these exercises.

During the second half of the semester, you will be performing several molecular biology exercises. All procedures and results should be included in your laboratory binder. There will be a **quiz** the last day of lab covering these exercises.

GRADE DETERMINATION:		
	Lab Notebook	50%
	Midterm Quiz	25%
	Final Quiz	25%
		100%

The lab is worth 30% of your total genetics grade. You must pass the lab in order to pass the course.

Week of:	**Scheduled Laboratory Exercises**
Aug. 27	Handout - Using pop bead chromosomes to understand mitosis and meiosis. Mitosis & Meiosis at the microscopic level Biology Labs Online: http://www.biologylab.awlonline.com/ - **FlyLab** Purchase and get acquainted.
Sept. 3	**NO LABS THIS WEEK– LABOR DAY HOLIDAY**
Sept. 10	Biology Labs Online (BLOL): FlyLab - Assignment 1: Performing Monohybrid, Dihybrid, and Trihybrid Crosses Handout: The Chi-Square/Goodness of Fit Test using Dihybrid Corn.
Sept. 17	BLOL: FlyLab - Assignment 3 – Lethal Mutations & Assignment 5 – Sex Linkage
Sept. 24	BLOL: FlyLab Assignment 4 - Epistasis Handout: Human Blood Groups
Oct. 1	BLOL: FlyLab - Assignment 6 - Recombination
Oct. 8	BLOL: Pedigree Lab – Assignment 1 – Inheritance of Lateral Sclerosis (ALS) Handout: Applied Human Genetics
Oct. 15	**MIDTERM QUIZ** Handout: DNA Structure
Oct.22	Handout: Transformation of *Escherichia coli* Handout: Restriction mapping of plasmid DNA
Oct. 29	Handout: DNA Fingerprinting Extraction of human DNA & Polymerase chain reaction (PCR)
Nov. 5	Handout: Agarose Gel Electrophoresis Run gel of human DNA
Nov. 12	BLOL: Translation Lab – Assignment 2 – Mutations BLOL: Hemoglobin Lab – Assignment 1 – Sickle Cell Disease
Nov. 19	**NO LABS THIS WEEK -THANKSGIVING HOLIDAY**
Nov. 26	BLOL: PopGen Lab – Assignment 1
Dec. 3	**Lab Final** **Lab notebooks due**

BIOL 230 Introduction to Soil Science 4cr

Prerequisite: CHEM 108 & 109 or above; NSCI 103 or BIOL132; and BIOL126

Instructor: Paul Hazlett
Forest Soils Scientist-Canadian Forest Service
Office 255 Crawford Hall
phazlett@lssu.edu

Class Times:

Lecture - Tuesdays 6:00-7:30 pm
Lecture - Thursdays 6:00-7:30 pm
Lab – Thursdays 2:00-5:00 pm.
Field day I – Monday, October 15 afternoon
Field day II – Saturday, October 20 8:00 am – 5:00 pm

Office Hours: To be determined

Required Texts: Soil in The Environment: Crucible of Terrestrial Life. 2008. Daniel Hillel. Academic Press, Burlington, MA. ISBN 978-0-12-348536-6

Additional **REQUIRED** readings will be available on Blackboard

Course Description:

A course dealing with the soil ecosystem as a natural resource and as an environmental medium. Beginning with factors involved in soil formation the course will survey soil physical, chemical, and organic properties and how they respond to disturbance. Soil reactions to wastes and wetland interactions will be discussed. Laboratories will focus on description of local soils and the use of soil survey information in making soil interpretations.

Course Goals:

To sufficiently familiarize students with the science of soils so they may readily understand general soil reports and issues.

Student Outcomes:

After successfully completing this course, students will be able to:

- accurately characterize a soil pit
- combine information from soil surveys and field sample analysis to differentiate soil landscape units
- understand and be able to communicate the concept of soil as an ecological unit
- communicate soils information in a professional manner
- synthesize soils information to make meaningful land use decisions
- read a scientific article and use higher order thinking skills to evaluate it
- communicate the interaction of a soil and its landscape

Grading Scale and Policies:

Grades will be calculated as a straight percentage of the total points assigned: Do your best job on assignments the first time around, as there will be no extra credit

Point Values:

Discussion Groups	120 pts
In Class Exams (Thurs Sept 20, Thurs Oct 11, Thurs Nov 8)	250 pts
Lab Reports & Projects	180 pts
Lab Final (Thurs Dec 6)	100 pts
Lecture Final (Tues Dec 11)	100 pts
Total Points	750 pts

Grading Scale:

Percentage	Grade	77.5-80	C+
95-100	A+	72.5-77.5	C
92.5-95	A	70-72.5	C-
90-92.5	A-	67.5-70	D+
87.5-90	B+	62.5-67.5	D
82.5-87.5	B	60-62.5	D-
80-82.5	B-	<60	F

***Ground Rules*:**

1. Completing assignments on time and keeping up with the class material is important for success in this course and in college. Late assignments **will not** be accepted except for legitimate **pre-approved** reasons as determined by the instructor. Examples of legitimate reasons are: severe illness, death in family, etc.
2. Use of head phones, cell phones and hats during exams is prohibited.
3. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class for the day and this will count as an absence.
4. Attendance: **STRONGLY** recommended in lecture; **MANDATORY** in labs. You are responsible for all material covered in class, **regardless** of your attendance

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

Semester Schedule & Assignments

Week 1

Tues Aug 28, Thurs Aug 30 Introduction, Soil as a Living Body, Topsoil & Civilization

Text p. ix – xii, p. 1-13

NO LAB Thurs Aug 30

Week 2

NO LECTURE Tues Sept 4

Thurs Sept 6 Soil Formation, Discussion Overview
Text p. 15-26

LAB Thurs Sept 6 Glacial History & Landforms of the Eastern Upper Peninsula, Field Determination of Soil Colour and Texture 256 CRW

Week 3

Tues Sept 11, Thurs Sept 13 Soil Classification

Text p. 27-53

Thurs, Sept 13 ***Discussion #1 (20 points)***
(Article /Discussion #1 Questions / Discussion Worksheet)

LAB - Thurs Sept 13 Lacustrine Clay Plains, Soil Catenas Allan Farm

Week 4

Tues Sept 18, Thurs Sept 20 Soil Taxonomy

Text p. 27-53

Thurs, Sept 20 ***First Examination (50 points)***

LAB - Thurs Sept 20 Recessional Beaches, Linear Dunes Algonquin Area
Week 3 Soil Catena Lab Due - 25 points

Week 5

Tues Sept 25, Thurs Sept 27 Soil Physical Properties, Soil Water

Text p. 55-62; 69-77; 79-90

Thurs, Sept 27 ***Discussion #2 (20 points)***
(Article /Discussion #2 Questions / Discussion Worksheet)

LAB - Thurs Sept 27 Outwash Plains I Raco Area
Week 4 Recessional Beach Lab Due – 25 points

Semester Schedule & Assignments

Week 6

Tues Oct 2, Thurs Oct 4 Soil Water, Soil Chemistry I

Text p. 91-120; 62-69

Thurs, Oct 4 ***Discussion #3 (20 points)***
(Article /Discussion #3 Questions / Discussion Worksheet)

LAB - Thurs Oct 4 Outwash Plains II Raco Area

Week 7

Tues Oct 9, Thurs Oct 11 Soil Chemistry II, Water and Energy Balances

Text p. 135-149; 121-133

Thurs, Oct 11 ***Second Examination 1 hour (100 points)***

LAB - Thurs Oct 11 Niagara Escarpment Scott Quarry

Week 8

Mon, Oct 15 Field Day I – Turkey Lakes Watershed, Ontario
Tues Oct 16, Thurs Oct 18 Soil Biodiversity, Soil Organic Matter

Text p. 163-174

Thurs, Oct 18 ***Discussion #4 (20 points)***
(Article /Discussion #4 Questions / Discussion Worksheet)

LAB - Thurs Oct 18 Field Tour Preparation 256 CRW
Week 5 and 6 Outwash Plains I and II Lab Due – 25 points

Saturday October 20 Field Day II –

Long-Term Soil Productivity (LTSP) Experiment, Ontario

Week 9

Tues Oct 23, Thurs Oct 25 Soil Fertility & Plant Nutrition, Soil Fertility Management, Soil Erosion I

Text p. 151-162; 197-210

LAB - Thurs Oct 25 Two-Storied Soils Raco Area

Week 7 Scott Quarry lab due – 25 points

Week 10

Tues Oct 30, Thurs Nov 1 Soil Erosion II, Farming Systems

Text p. 175-181

Thurs, Nov 1 ***Discussion #5 (20 points)***
(Article /Discussion #5 Questions / Discussion Worksheet)

LAB - Thurs Nov 1 Soil and Plant Analysis Laboratories Sault, ON

Week 9 Two-Storied Soils lab due – 25 points

Semester Schedule & Assignments

Week 11

Tues Nov 6, Thurs Nov 8 Soil Water Management, Wetland Soils

Text p. 181-195

Thurs, Nov 8 ***Third Examination 1 hour (100 points)***

LAB - Thurs Nov 8 Laboratory Determination of Soil Separates 256 CRW

Week 12

Tues Nov 13, Thurs Nov 15 Soil Surveys and Land Use Planning

Thurs, Nov 15 ***Discussion #6 (20 points)***
(Article /Discussion #6 Questions / Discussion Worksheet)

LAB - Thurs Nov 15 Web Soil Survey Exercise Computer Lab

Soil Separates Lab Due (GROUP report, 30 points)

Week 13

Tues Nov 20 Soil Pollution & Remediation

Text p. 211-222

NO LECTURE Thurs, Nov 22 Thanksgiving
NO LAB Thurs, Nov 22 Thanksgiving

Week 14

Tues Nov 27, Thurs Nov 29 Role of Soil in Mitigating Climate Change, Role of Soil in Global Food Supply, Greenhouse Soils

Text p. 233-261

LAB - Thurs Nov 29 **Work on Web Soil Survey Exercise** Computer Lab

Week 15

Tues Dec 4, Thurs Dec 6 Urban Soils, Concluding Overview

Text p. 223-232

LAB - Thurs Dec 6 ***Lab Final (100 Points)*** 256 CRW
Soil Survey Lab Due (25 points)

Tuesday December 11 6:00 – 8:00 pm FINAL EXAM (100 points)

Some thoughts on teaching and learning from Dennis Merkel:

I believe that I cannot "teach" you anything. That is, you will not learn simply by the act of me standing in front of you and lecturing. Learning only comes when you have the desire to learn. My role is that of putting you in situations where you have the opportunity to learn. This means that **YOU must take an ACTIVE and RESPONSIBLE role in your learning** in order to take advantage of these opportunities. You must become confident in your ability to learn rather than looking to me as having THE answer or being the "authority".

There is a large body of evidence which supports the concept that we learn best by doing rather than listening. The class is structured to give you a variety of learning opportunities. These activities are useful only if everyone makes an honest effort and comes to class prepared. The readings listed in the syllabus and the discussion questions are to be done before class. By working together, in and out of class, you will find that every person has some contribution to make in the understanding and evaluation of the information presented.

You will be expected to take a much more active role in this class than you probably have ever had to do before. This will not be a class where you have the "luxury" of being anonymous. I will work at getting to know you ALL by sight. In addition, with the group exercises you will get to know each other as well.

Cognitive Development:

This is linked to critical thinking ability. Mental abilities, like physical abilities, need to be practiced before they can be mastered. Cognition refers to how we think about or know things. Our cognitive abilities determine our capability to understand complex issues. Through a series of assignments (exercises) you will have the opportunity to develop and strengthen your critical thinking abilities and improve your cognitive skills.

In order to improve cognition it is useful to have an idea of what cognitive levels exist. A model presented in an article by Dr. Craig Nelson (1989)[1] lists four cognitive levels and three transitions between these levels. The material that follows outlines Dr. Nelson's article.

Level 1 - Dualism

The assumption that there are right and wrong answers for each question. Students rely on "authorities" for answers. Critical thinking is remembering "right" answers.

Transition 1

Perceiving uncertainty as real

- Question "authorities"; all subjects contain meaningful uncertainty.

Level 2 - Multiplicity

When students first encounter uncertainty they have difficulty selecting better options. In the absence of an "authority" one person's opinion is perceived as just as good as anyone else's. To students at this level, Critical thinking is intuitive, not reasoned.

Transition 2

Perceiving opinion as insufficient

- Developing the ability to choose "better" answer despite uncertainty.

Level 3 - Decisions within Disciplines

Students can select preferable theories within a field (can use information that is accepted as being known in a discipline to make decisions) but cannot make decisions in complex situations (such as ethical or science & society issues).

Transition 3

Joining values and analysis

- Understanding that values determine the questions we ask and the evidence we accept in a field. Realizing the field's (discipline's) limits.

Level 4 - Commitment

Students realize that simple answers are rare and that most solutions involve tradeoffs. Taking responsibility for validity of beliefs & understand how others can logically believe differently.

The transitions from one level to another are not automatic and will require effort and commitment on your part for them to happen

BIOL/EVRN285 Epidemiology 3 Cr.

Instructor: Gregory Zimmerman, Office: CRW 213 v: X2470 e: gzimmerman@lssu.edu
Office hours:

Class format: Class meets for two, 75 min in-class meetings. There will be out-of-class discussions on Blackboard and out-of-class readings and assignments.

Required Text and Supplies:
Gordis, L. 2008. Epidemiology 4/e. Saunders Publ.

Prerequisites:
A statistics class

Learning Outcomes:
After completing this class, you should be able to
describe:
- the ecological approach to studying health outcomes
- the major public health issues in developed and developing countries
- the major determinants of public health
- the role of epidemiology in protecting public health
- role of various professionals in maintaining public health
- the legal framework for disease surveillance and investigations, public health inspections and site reviews, and other activities of in which environmental health practitioners and epis collaborate
- how risk factors for particular health outcomes are determined,
- the attribution of causation in epidemiological studies
- the various types of epidemiological studies and their relative merits
- confounders and how we can mitigate confounding in epidemiological studies
- the epidemiology of a health outcome of your choosing
- barriers to good public health
- effective practices for promoting healthy behaviours
- how epidemiological information is used to prevent disease

define and describe the role and value of
- rates of health outcomes
- sources of public health information
- legal framework for public health data

critically evaluate:
- epidemiological information and media reports of it
- the role of governments in protecting public health

communicate
- information about health and risks to health to general public audience
- advocacy related messages about public health

Accommodations:
In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

Components of grade:		**Grading Scale**:
Exams (essay) (3)	45%	90 to 92: A- 93 to 97: A 98 to 99: A+
Final exam	15%	80 to 82: B- 83 to 87: B 88 to 89: B+
Weekly assignments	20%	70 to 72: C- 73 to 77: C 78 to 79: C+
Term project[1]	20%	60 to 70 D; LT 60 F
		Additional constraint on grade:
		You must pass the final to pass the course
		Failure to turn in an assignment will reduce your letter grade regardless of the point value for that assignment

1. The standard term project is a report about the epidemiology of a health outcome of your choosing. But why do yet another report for yet another class? Why not do a service learning project instead. Yes, that's right, instead of a report you may choose to do a service learning project. Ask me for more details.

Class policies:
Class attendance is required. If you know you will have to miss class more than a time or two, please arrange to take the class at a time in which you can make all the class meetings. Please take the tests on the assigned dates. Otherwise, you will need to inform me 2 business days prior to the test. Other emergencies require appropriate documentation. No late assignments accepted without prior approval two business days prior to deadline. All LSSU rules of academic conduct apply. You cheat, you flunk. Plagiarizing is cheating. Know what constitutes plagiarism, but a simple definition is: If it isn't your work, you're plagiarizing.

TOPIC OUTLINE

Week	Topic	Assignments*
Week1	What is Public Health, role of PH professionals Basic ecology of health, Legal frameworks	GA1, Read Chps 1-2
Week 2	Measuring morbidity and mortality, Evaluating screening tests	GA2, Chapts 3,4, 5 Topic memo
Week 3	Expressing prognoses, assessing preventions, therapies	Exam 1, Chapts 6,7 GA3
Week 5	Cohort and Case-Control Studies	GA4, Chps 8-10
Week 6	Epi studies, cont., including foodborne illness outbreaks	GA5
Week 7	Risk – quantifying risks of illness, Communicating info about risks	Chapts 11- 13 Outline and sources or ASL proj descr.
	SPRING BREAK	
Week 8	Causation, bias, confounding, interactions	GA6, Chapts 14-16
Week 9	Evaluation of health services	Chapt 17-18
Week 10	Epi and public policy	Exam 2, Chapt 19
Week 11	Barriers to good public health, Determinants of Health	
Week 12	Public health promotion and interventions Using epidemiological information to prevent disease	GA7
Week 11	Communicating about public health	GA8
Week 12	Professionalism	Exam 3
Week 13	Specific types of epidemiology, cont.	Report
Week 14	IT and innovations in public health promotion	
Exam Week	FINAL EXAM Consult official schedule for date and time	

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GA= General Assignments. To be announced.

BL280 Biometrics (a/k/a "Biostats") 3cr. Fall 2012

Instructor: Gregory Zimmerman, Office: CRW 213 v: X2470 e: gzimmerman@lssu.edu

Format: 2 hours class discussion/lecture, 2 hours of formal lab activity
In addition, the suggested 2 hours of study outside of class for each hour in class applies well to this course. See "How to succeed," below.

Office hours:
Hours: 1000 to 1100 MW; 1300 to 1400 Mon; 1600-1700 Th; 1500 to 1600 F; Other hours by appt

Required Text and Supplies:
Gotelli and Ellison. 2004. Primer of Ecological Statistics . Sinauer and Associates, Sunderland, Mass. 510 pp.
i-Clicker
flash memory for use in lab.

Prerequisites:
MA111 required, spreadsheet experience helpful, proficiency in algebra helpful. Strong interest in using math for addressing biological research problems helpful.

Learning Outcomes:
After completing this class, you should be able to demonstrate your ability to:

- Make decisions about populations based on statistical information from samples*
- Explain the rationale of the decision,
- Identify limitations of that decision (e.g., possibility of confounding and other issues in the study design)
- Design the sampling and statistical analysis portion of a biological experiment of interest to you,
- Write up the results section of a technical scientific report based on data provided.
- Select an appropriate statistical testing approach for example studies,
- Use Excel, SPSS and R for analyzing data.

Another goal of the class is to leave you wanting to continue using statistics and learning new statistical techniques

* the statistical information will be in the form of a p-value or a value of a test statistic along with its critical value. The test statistics we will be covering include: standard t-tests, F-tests, χ^2 tests, correlation, analysis of variance for linear models (regression, categorical group means including error reduction with blocking and testing for interaction), and their corresponding permutation-based tests. Maximum likelihood and bayesian procedures will be introduced as well.

Resources to help you reach those objectives:
Lecture/discussion, lab exercises, assignments and exams, Blackboard discussions, the text, the instructor, your prerequisite classes, the world around you.

Be sure to take full advantage of all of these resources. Read the book, review your notes, ask questions, think about it, review material from your prereqs, see how statistics is used both in the profession and in general, see how you will be using statistics in your work both in school and professionally.

Policies to help you reach those objectives:
Lab attendance is mandatory. You must pass the lab to pass the course. If you miss more than three lab sessions, you will not pass the lab.

Failure to turn in any assignment will result in a full letter grade deduction from your semester grade.

Late assignments or missed tests not accepted without prior arrangements made at least 2 business days ahead of due date. Other cases require documentation from appropriate university office. You will take the final during the assigned time except for extreme circumstances approved in advance. Convenience of travel plans is not considered an

extreme circumstance.

All university policies regarding academic conduct apply.

Accommodations:
In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

How to succeed:
Attend all lectures and actively participate. Pay attention. Ask lots of questions. Come to officee hours. Study in groups. Want to do well. Read your notes the same day and once more before the next class period. Think about the topic between classes, observe the use of statistics in the world around you.

Components of grade:		**Grading Scale**:
Small Tests (5) *	30%	90 to 92: A- 93 to 97: A 98 to 99: A+
Midterm exam	10%	80 to 82: B- 83 to 87: B 88 to 89: B+
Final exam	15%	70 to 72: C- 73 to 77: C 78 to 79: C+
Weekly lab assignments	20%	60 to 70 D; LT 60 F
Results write-ups (3)	10%	ADDED CONSTRAINT ON GRADE:
Article reviews (2)	05%	You must score at least a B on the final to
Study design report	05%	get an A for the course, C to get a B, etc.
In-class activities**	05%	You must pass the final to pass the course
		You must pass the lab portion to pass the course

* these activities include i-Clicker responses and Blackboard discussions. Please do not ignore these activities. Failure to complete the majority of these activities will result in a reduction of your semester grade.

We will also be reading the book “The Immortal Life of Henrietta Lacks.” Questions about the reading will appear on exams and in Blackboard discussion questions.

TOPIC OUTLINE

Date	Topic	Assignment
28 Aug	Getting started	Read: Chapt 6,7
29 Aug	An example study	Lab: Observing and describing a process
06 Sept	Elements of a study	Read Chapt 3
11 Sept	Summarizing data with graphs and numbers	Lab: Exploring data
13 Jan	Summarizing, cont. The sampling problem	Read pg 53, 90
18 Sept	Sampling distribution of x-bar	**ST1** Lab: Sampling
20 Sept	Single sample location problem	Read: pg 117
	null and alt hypoth, α, β, rej reg/p-values	Lab: A single sample loc problem
25 Sept	Formalizing hypothesis testing one-sided vs. two-sided	
27 Sept	Two-group location problem	**ST 2**, Lab: a two grp location problem
02 Oct Feb	Reducing error variance (pairing)	**Results writeup 1**
04 Oct	Multiple group: AOV set-up	Read: pg 289
09 Oct	Single factor: CRD	Lab: AOV
11 Oct	FATs	**ST3**; Lab: more AOV, lab practical
16 Oct	Blocking	**Article review 1 due**
18 Oct	Cross classified categorical vbles: χ^2	Read: pg 349
23 Oct	MIDTERM EXAM	Lab: discuss study design
25 Oct	Correlation analysis	Read: pg 239 Lab: χ^2 and corr.
30 Oct	Regression analysis	**Res. 2 due**
01 Nov	More regression	Lab: regression
06 Nov	More regression; alternatives	
08 Nov	Permutation tests	**ST 4**; Read: pg 109 Lab: more regr
13 Nov	More permutation tests	**Study design due**
15 Nov	Bayesian methods	
20 Nov	Bayesian, cont.	**ST 5** Read: pg 122; **Res. 3 due** Lab: perm tests
27 Nov	A quick look at multivariate statistics	Read: pg 406
29 Nov	Multivar, cont.	
03 Dec	Catch-up	Lab: lab practical
06 Dec	Review	**Article review 2 due**

Week of 10 Dec FINAL EXAM Consult official schedule for date and time

BIOL 422 - Parasitology (2,2) 3 Credits

Prerequisites: BIOL 131 and BIOL 132

Instructor(s): Jason M. Garvon, Ph.D.
Crawford 226
(906) 635-2471
jgarvon@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
			9 am – 12 pm	10 am - 12 pm

Or by appointment

Required Texts:

Roberts, L.S. and J. Janovy Jr. 2008. Foundations of Parasitology (8th edition). McGraw-Hil Publishing Company.

Student Lab Notebook

Old shirt (long sleeves), or lab coat designated only for this course.

Course Description:

A study of the morphology, taxonomy, habitats and life cycles of parasites.

Course Objectives: At the conclusion of BIOL 422 students will:

7. Draw and explain life cycles of major parasites of concern for human and veterinary health
8. List and provide examples of several parasites in each of the major phyla of parasites
9. Assess potential for prevention of infection with various parasites in light of ecological factors related to specific life cycles
10. Correctly identify parasites of medical and veterinary importance in both adult and juvenile stages
11. Show competency in diagnosing parasitic infections using proper techniques

Grading Scale and Policies:

Grading for this course will be based on exams, quizzes, presentations and laboratory assignments. Point values for this course can be found in the table below. The course is based on 800 points. Students may choose to complete the designated assignments as needed to make up points lost during exams or assignments. It is the student's responsibility to calculate their scores as a means of monitoring their progress, even though the Instructor will keep up to date grades. The minimum points needed for each letter grade are listed below the table.

Point Values:

Point Source	Points Possible	Student's Score
Exam 1 (9/24)	100	/100
Exam 2 (10/24)	100	/100
Exam 3 (11/28)	100	/100
Final Exam	200	/200
Parasite Presentation	25	/25
Lab Practical	250	/250
Lab quizzes	25	/25
Total Points	**800**	**/800**

GRADING SCALE (minimum total course points needed):

744 = A	696 = B+	624 = C+	536 = D+	<480 = F
720 = A-	664 = B	584 = C	504 = D	
	640 = B-	560 = C-	480 = D-	

***Ground Rules*:**

7. Please note that I will respond to Email and phone messages during my normal business hours, if you email me outside of these hours do not expect an immediate reply.
8. Each student is responsible for all reading material presented in class, including lectures, handouts, reading assignments, and class discussions.
9. If a student misses class, it is up to the student to obtain class notes and materials from another classmate. There will be no unexcused absences when assignments are due. Arrangements must be made prior to class if you cannot attend. If prearrangements are not made the student will not receive credit for the assignment due that day.
10. Instructor-graded assignments will usually be returned to students the following class period. If a student is absent when graded material is returned, it is the student's responsibility to see the instructor to get their graded work during the instructor's office hours.
11. All cell phones, pagers or other electronic devices (watches with alarms) are to be turned off prior to class. These devices cause disturbances to class when activated and negatively impact the learning experience. Violations of this policy will be dealt with on an individual basis.
12. Plagiarism and cheating will not be tolerated. Any student caught cheating will receive an F for the entire course.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

HONOR PLEDGE

As a student of Lake Superior State University, you will refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer programs, lab reports, quizzes, tests or exams which are Honor Code violations. Furthermore, you understand and accept the potential consequences of punishable behavior.

EXAM SCHEDULE & IMPORTANT DATES

Exam 1	**Monday, September 24**
Exam 2	**Wednesday, October 24**
Exam 3	**Wednesday, November 28**
Lab Exam	**Thursday, November 29 and December 8**
Final Exam	**Normally scheduled exam time**

Exam Make Up Policy - If you miss an exam it is up to the instructor to decide if you will be able to make it up at a later date. In general a note from the health center or other doctor documenting the reason for missing the exam, other emergencies (family illness or death), or absence due to participation in a university sanctioned event will qualify as a valid excuse. **All make exams will be administered the Friday of final exam week at noon.**

Week	Course Topic	Chapters
8/27	Introduction and Basic Principles	1, 2 & 3
Lab	Microscope calibration and basic safety	
9/3	Nematodes	22 - 24
Lab	Introduction to Nematodes Technique – Baermann	
9/10	Nematodes Continued	25-27
Lab	Observation of adult Nematodes, Fecal analysis, filarial nematodes	
9/17	Nematodes & Nematomorpha	28-31
Lab	Nematode Quiz & Introduction to platyhelminth life stages	
9/24	Exam 1 and Aconthocephalans	32
Lab	Identification of Acanthocephalans	
10/1	Cestodes	19-21
Lab	Identification of Cestode and Trematode eggs Technique – Sedimentation and fecal floatation	
10/8	Cestodes & Trematodes	21 - 22
Lab	Observation of adult Cestodes and Trematodes Cestode and Trematode Quiz	
10/15	Trematodes	22-24
Lab	Diagnosis of infection practice and Quiz	
10/22	Trematodes Continued & Exam 2	22-24
Lab	Scanning and identification of protozoa Technique – Obtaining and fixing blood slides	
10/29	Basics Protozoa & Trypanosomes	4,5,&6
Lab	Scanning and identification of protozoa	
11/5	Amebas and Apicomplexans	7, 8, & 9
Lab	Arthropod identification and preparation	
11/12	Amoebas and Apicomplexans Continued	7, 8, & 9
Lab	Practice lab exam	
11/19	Crustaceans and Tongue worms	33-35
	No Lab – Thanksgiving Break	
11/26	Lice & Exam 3	36
Lab	Lab Exam	
12/3	Mites, Ticks & Insects	37-41
Lab	Lab Exam	
12/10	Final Exam Week	All above

** Lecture material may be covered more slowly or rapidly than indicated on the syllabus. Exams will cover only material previously covered in lectures.

CHEM115 (4,3) 5 Credits

Instructor(s): Instructor Name: Roger Blanchard, PhD
Office Number: CRW314
Phone Number: (906) 635-2431
E-mail address: rblanchard@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
9:00-10:00/ 12:00-1:00	9:00-10:00	9:00-10:00/ 12:00-1:00	9:00-10:00/ 12:00-1:00	

Prerequisites: One year of high school chemistry or equivalent plus MATH111 or equivalent with a C or better

Required Texts: *Chemistry & Chemical Reactivity, Eighth Edition*, Kotz/Treichel/Townsend
The soft cover version of the book is adequate. I will post problems/exercises on Blackboard as well as solutions.

Recommended Text: None

Course Description: This is a college chemistry course. The objective of the course is to provide you with a thorough background in basic chemistry. There will be considerable math involved with the course.

Course Goals: To learn the fundamentals chemistry.

Course Objectives: At the conclusion of CHEM115 students will:

12. have a thorough understanding of the principles involved in the first half of general chemistry.
13. have the ability to do mathematics associated with general chemistry..

Grading Scale and Policies:
Point Values:

Exams	300 points
Quizzes	100 points
	Total 400 points

There will be 12 quizzes. Quiz dates will be announced at least 1 period prior to a quiz. Your two lowest quizzes will be thrown out. There are no make-ups for quizzes. If you miss a quiz, your score is zero.

You are required to take the exams on the assigned dates. If you can't take an exam at the assigned time and date, you must provide a written request to take it at a different time or date. If illness prevents you from writing a written request, you must inform the Provost's office concerning your illness otherwise you will not be permitted to take an exam late.

Grading Scale:

98-100	A+	68-77	C
90-97	A	67-68	C-
89-90	A-	66-67	D+
88-89	B+	57-66	D
79-88	B	56-57	D-
78-79	B-	0-56	F
77-78	C+		

***Ground Rules*:**

12. Completing assignments on time and keeping up with class material is important for success in this course and in college. Late assignments **will not** be accepted except for legitimate **pre-approved** reasons as determined by the instructor. Examples of legitimate reasons are: severe illness, death in family, etc.
13. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
14. Use of head phones, cell phones and hats during exams is prohibited.
15. Cell phones must be turned off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class for the day and this will count as an absence.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

HONOR PLEDGE

As a student of Lake Superior State University, you have pledged to support the Student Honor Code of the College of Engineering & Technology. You will refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer programs, lab reports, quizzes, tests or exams which are Honor Code violations. Furthermore, you understand and accept the potential consequences of punishable behavior.

Tentative Course Outline

Session Number	Week	Days	Date	Topic	Reading Assignment	Assignment Due
Lecture &Lab, Week 1	1	M/T /W/ R	8/27	Chapter 1: Basic Concepts of Chemistry	Chapter 1	Quiz 1
Lecture & Lab, Week 2	2	M/T W/R	9/3	Chapter 2: Atoms, Molecules and Ions	Chapter 2	Quiz 2
Lecture &Lab, Week 3	3	M/T W/R	9/10	Chapter 2: Atoms, Molecules and Ions	Chapter 2	Quiz 3
Lecture & Lab, Week 4	4	M/T W/R	9/17	Chapter 3: Chemical Reactions	Chapter 3	Quiz 4
Lecture & Lab, Week 4	5	M/T W/R	9/24	Review for Test/Test		Test 1
Lecture & Lab, Week 5	6	M/T W/R	10/1	Chapter 4: Stoichiometry: Quantitative Information about Chemical Reactions	Chapter 4	Quiz 5
Lecture & Lab, Week 6	7	M/T W/R	10/8	Chapter 4: Stoichiometry: Quantitative Information about Chemical Reactions	Chapter 4	Quiz 6
Lecture & Lab, Week 7	8	M/T W/R	10/15	Chapter 5: Principles of Chemical Reactivity: Energy and Chemical Reactions	Chapter 5	Quiz 7
Lecture & Lab, Week 8	9	M/T W/R	10/22	Chapter 5: Principles of Chemical Reactivity: Energy and Chemical Reactions	Chapter 5	Quiz 8
Lecture & Lab, Week 9	10	M/T W/R	10/29	Chapter 6: The Structure of Atoms	Chapter 6	Quiz 9
Lecture & Lab, Week 10	11	M/T W/R	11/5	Chapter 7: The Structure of Atoms and Periodic Trends	Chapter 7	Quiz 10
Lecture & Lab, Week 11	12	M/T W/R	11/12	Review for Test/Test		Test 2

Lecture & Lab, Week 12	13	M/T W/R	11/19	Chapter 8: Bonding and Molecular Structure	Chapter 8	Quiz 11
Lecture & Lab, Week 13	14	M/T W/R	11/26	Chapter 23: Nuclear Chemistry	Chapter 23	Quiz 12
Lecture & Lab, Week 14	15	M/T W/R	12/3	Final Exam Review		
Lecture & Lab, Week 15	16	M/T W/R	12/10	Final Exam		

Finally, I reserve the right to modify this syllabus as I see fit during the course of the semester.

CHEM116 General Chemistry II (3,3) 4 Credits

Prerequisites: CHEM115 with a grade "C" or better.

Instructor(s): Dr. Alexei Iretski
Crawford 316
(906) 635-2045
airetski@lssu.edu

Monday	Tuesday	Wednesday	Thursday	Friday
2 – 5 pm	10 am – 12 pm			

Required Text(s): Chemistry and Chemical Reactivity Hybrid Edition with Printed Access Card (24 months) to OWL, 8th Edition.Cengage Learning, 2012.
General Chemistry Lab 8e for LSSU CH116Beran. (PACKET @ BOOKSTORE)
Scantron Forms for tests and laboratory evaluations

Your textbooks are available at the campus bookstore. New, used, rental and digital are options for purchase depending on title. You may use cash, checks, debit and credit cards as forms of tender, including financial aid checks. In addition to in-store purchase, the bookstore also offers the convenience of ordering your textbooks 24/7 online through My.LSSU (Anchor Access) or at www.lssu.bncollege.com.

Recommended Text(s): Principles of Modern Chemistry, 7th Edition.Oxtoby, Gillis, Campion. Cengage Learning, 2012.

Course Description: Continuation of CHEM115 with emphasis on equilibrium.

Course Objectives: The successful student in General Chemistry will demonstrate operational proficiency in basic laboratory operations and demonstrate intermediate competency in applying concepts and solving numerical problems related to the following chemical topics:

- Solutions
- Kinetics: The Study of rates of Reaction
- Chemical Equilibrium – General Concepts
- Acids and Bases
- Equilibria in Solutions of Weak Acids and Bases
- Solubility and Simultaneous Equilibria
- Thermodynamics
- Electrochemistry
- Nuclear Reactions and Their Role in Chemistry

General Education Objectives:
This course is designed to meet the Mathematics General Education Outcome. Students will be able to analyze situations symbolically and quantitatively in order to make decisions and solve problems. Specifically, students will be able to:

2. Solve problems presented in the context of real world situations with emphasis on model creation, prediction and interpretation. This will be done using multiple perspectives

(formulas, tables, graphs, and words) and will include fitting an appropriate curve to a scatter plot.

Grading Scale and Policies:
Point Values:

Exams	800 points
Homework	100 points
Lab	100 points
	Total 1000 points

Grading Scale:

98-100	A+	70-77	C
92-97	A	68-69	C-
90-91	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

Grading Scheme:

Course grades will be derived from Assessments (not less than 80%), Homework and Lab (up to 10% each). Assessments include in class quizzes, the writing assignments, the intermediate tests and final exam. The **cumulative final examis required**. The laboratory work is a mandatory component for the course**, a passing grade in the lab must be achieved to receive a passing grade in the course.** In the occasional circumstance where a student is repeating this course, the laboratory is still required and must be completed regardless of their past laboratory experience. Grading is progressive with later tests whose content is cumulative for the entire course, weighted more than earlier tests. Attendance at all class sessions is strongly advised, graded activities will be included without further notice. Scantron forms and #2 pencil are required for each test/exam. No grades are dropped or replaced, no extra credit is available. Full credit is available only to work completed by the assigned completion date, late work may be discounted or rejected.

Exam Dates: Regular exams are tentatively scheduled for: September 19, October 19, November 12, and December 5. Please note the Final Exam date:**12/12/2012 at 10 am.** All exams are in the regular classroom. Missed exams cannot be retaken except in emergency or extenuating circumstances, schedule an early exam if an approved absence is unavoidable.

Exams: Each student is advised to bring a personal calculation aid with them to every class, laboratory and test/examination (abacus, slide rule or calculator) - these cannot be shared during tests and should be capable of manipulating scientific notation, logarithms and exponents. **Only NON-PROGRAMMABLE SCIENTIFIC CALCULATORS may be used during tests, quizzes and examinations.**

Online Homework/Quizzes: Success in General Chemistry is undeniably linked to the amount of time invested in learning the material and problem solving. Full credit for the homework will be given for students who successfully complete 90% of the assigned sections. The 10% grace factor is to allow for technical difficulties, poorly structured questions, or issues with deadlines. Homework is NOT an assessment and you are not required to complete it. However, due to extreme importance of homework

for learning purposes, your overall homework performance will constitute up to 10% of your final score. For example, if your overall score at homework for the semester is 85%, this will give you 85% x 0.1 = 8.5% to your final score.

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University Policies and Statements:

Policies, including those below, are posted on the Provost's website: www.lssu.edu/provost/forms.

- Online and Blended Course Attendance Policy
- The Americans with Disabilities Act & Accommodations
- IPASS (Individual Plan for Academic Student Success)

Tentative Course Outline

Week	Days	Week of:	Topic	Reading Assignment	Assignment Due
1	MWF	8/27	Physical Properties of Solutions	Chapter 14	Homework - Ch:14
2	WF	9/3	Kinetics	Chapter 15	Homework – Ch:15
3	MWF	9/10	Kinetics	Chapter 15	Homework – Ch:15
4	MWF	9/17	Applications and Assessment		
5	MWF	9/24	Chemical Equilibrium	Chapter 16	Homework – Ch:16
6	MWF	10/1	Acids and Bases	Chapter 17	Homework – Ch:17
7	MWF	10/8	Weak Acids and Bases	Chapter 17	Homework – Ch:17
8	MWF	10/15	Applications and Assessment		
9	MWF	10/22	Solubility	Chapter 18	Homework – Ch:18
10	MWF	10/29	Thermodynamics	Chapter 19	Homework – Ch:19
11	MWF	11/5	Applications and Assessment		
12	MWF	11/12	Electrochemistry	Chapter 20	Homework – Ch:20
13	M	11/19	Electrochemistry		Homework – Ch:20
14	MWF	11/26	Nuclear Chemistry	Chapter 23	Homework – Ch:23
15	MWF	12/3	Applications and Assessment		

Fall 2012 TENTATIVE Laboratory Schedule:

Week#	Experiment/Activity
2.	Exp. 14. Molar Mass of a Solid.
3.	Exp. 23. Factors Affecting Reaction Rates.
4.	Exp. 24. A Rate Law and Activation Energy.
5.	Exp. 34. An Equilibrium Constant.
6.	Exp.6. Acids, Bases and Salts.
7.	Exp. 9. A Volumetric Analysis.
8.	Exp. 22. Molar solubility.Common-Ion effect.
9.	Exp. 26. The Thermodynamics of the Dissolution of Borax.
10.	Exp. 32. Galvanic Cells, the Nernst Equation.
11.	Exp. 18. Potentiometric Analysis

CHEM 225 Organic Chemistry I (3,3) 4 Credits

Prerequisites: CHEM 116 with a grade of C (2.0) or better

Instructor:
Prof. R. Adam Mosey
326 Crawford Hall
(906)-635-2284
rmosey@lssu.edu

Course Meeting Time
Lecture in 205 Crawford Hall; MWF 9:00 – 9:50 am
Labs in 335 Crawford Hall; Mon 2-5 pm (A), Tues 8-11 am (B), and Tues 2-5 pm (C)

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
10:00-12:00		4:00-5:00		10:00-12:00

Required Texts: *Organic Chemistry*, Janice Gorzynski Smith, 3rd Edition
Multiscale Operational Organic Chemistry, John Lehman, 2nd Edition

Your textbooks are available at the campus bookstore. New, used, rental and digital are options for purchase depending on title. You may use cash, checks, debit and credit cards as forms of tender, including financial aid checks. In addition to in-store purchase, the bookstore also offers the convenience of ordering your textbooks 24/7 online through My.LSSU (Anchor Access) or at www.lssu.bncollege.com.

Supplemental Items: A solutions manual to the required text is available and recommended. Additionally, molecular models are available for purchase at the bookstore. An excellent Virtual Textbook of Organic Chemistry, developed by Professor William Reush at Michigan State University, is also recommended as a supplemental textbook for further clarification. The textbook can be accessed at:

http://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/intro1.htm

Required Laboratory Items: Approved safety goggles or glasses; lab notebook with gridded duplicate pages

Blackboard: Handouts and assignments that will be used in this class will be available on blackboard.

Course Description: Fundamental principles of organic chemistry, covering the structures, reactions and properties of aliphatic and alicyclic compounds. The course will introduce the study of organic nomenclature, functional group chemistry, stereochemistry, reactive intermediates, organic synthesis, reaction mechanisms and conjugated unsaturated systems. The laboratory introduces basic organic laboratory techniques and includes experiments in organic separations, synthesis, and analysis

Course Goals: The goal of this course is to introduce the student to organic chemistry and to provide the student with a firm foundation in organic chemistry.

Course Objectives: At the conclusion of CHEM 225, the student will be able to:

14. Convert between names and structures of organic compounds (IUPAC nomenclature).
15. Understand fundamental physical and chemical properties of numerous functional groups.
16. Predict organic products arising from specified reaction conditions.
17. Predict reasonable routes to synthesize specific organic molecules.
18. Draw mechanisms for specified chemical reactions using curved arrow formalism.

Grading Scale and Policies:
Point Values:

Exams	300 points
Final Exam	200 points
Quizzes	100 points
Laboratory	300 points
	Total 900 points

Grading Scale:

91-100	A	71-73	C
88-90	A-	68-70	C-
84-87	B+	64-67	D+
81-83	B	61-63	D
78-80	B-	58-60	D-
74-77	C+	0-57	F

*The instructor reserves the right to curve the grading scale as deemed necessary.

Quizzes: Five (5) scheduled quizzes will be administered during the semester in the first 15 minutes at the ***beginning*** of lecture. The quizzes will be worth 25 points each, and the best four scores out of five will be counted toward your grade (100 points total). No make-up quizzes will be given.

Exams: Three (3) scheduled exams will be administered during the semester and will be held during the regularly scheduled lecture period. Each exam will be worth 100 points. No make-up exams will be administered in this class. If an exam is missed due to well-documented extenuating circumstances, the final exam will be prorated to 300 points. While this option is available, it is not recommended.

Final Exam: A cumulative final exam will be administered for the course on Wednesday, December 12, from 7:30-9:30 am in 205 Crawford Hall. The final exam will be worth 200 points. Those missing the final exam without a valid well-documented and pre-approved excuse will not be allowed to take a make-up exam and will receive a score of zero for the final exam.

Grading Issues: Exams and quizzes will be returned during a regularly scheduled lecture following the exam or quiz. Any regrading requests must be made to the instructor at that time by means of a note written on the exam and signed by the student. No exam which has left the lecture room in possession of a student will be considered for regrading.

Exam and Quiz Schedule:

*The instructor reserves the right to modify this schedule with sufficient notice.

Quiz 1: Friday, September 7
Quiz 2: Friday, September 21
Exam 1: Wednesday, October 3
Quiz 3: Friday, October 12
Quiz 4: Wednesday, October 24
Exam 2: Friday, November 2
Quiz 5: Friday, November 16
Exam 3: Friday, November 30
Final Exam: Wednesday, December 12 (7:30-9:30 AM)

Other Important Dates:

Labor Day Holiday: September 3-4. No classes or labs held.
Thanksgiving Holiday: November 21-23. No classes or labs held.

Homework Assignments/Problem Sets: Lists of pertinent problems from each text chapter will be given throughout the semester. In addition, problem sets with corresponding answer keys may be made available on Blackboard. It is recommended that the student work as many problems as possible. Perhaps the best indication of exam/quiz question style and content can be found by working book problems and posted problem sets. Students are encouraged to first work problems from the book and problem sets before checking their work in the textbook's Solution Manual and Problem Set Answer Keys.

Attendance: Attending class, completing assignments on time, and keeping up with the class material is important for success in this course and in college. Students are responsible for obtaining all notes and assignments made in class. Note again that make-up quizzes and exams will not be administered.

Academic Dishonesty: Academic dishonesty of any kind will not be tolerated in this course, in alignment with the Lake Superior State University Student Honor Code. Students are expected to perform all assigned work themselves unless otherwise noted. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.

Electronic Devices/Disruptive Behavior: No electronic devices may be used during class including but not limited to laptops, cell phones, and portable media devices without prior permission from the instructor. Violation of this policy may result in the loss of 25 points for each incidence. Disruptive behavior during lecture including but not limited to electronic device usage, talking, or otherwise disturbing fellow students may result in the loss of 25 points for each incidence. Use of electronics or disruptive behavior during graded assignments (including quizzes and exams) may result in immediate dismissal from the lecture hall and a grade of zero (0) for the assignment.

Tentative Course Outline

Week	Date	Topic
1	8/27	CH 1: Structure and Bonding
2	9/5	CH 2: Acids and Bases; **QUIZ 1 ON FRIDAY, SEPT 7**
3	9/10	CH 3: Intro to Organic Molecules and Functional Groups
4	9/17	CH 13: Mass Spectrometry and Infrared Spectroscopy

4-5	9/21	CH 14: Nuclear Magnetic Resonance; **QUIZ 2 ON FRIDAY, SEPT 21**
5-6	9/28	CH 4: Alkanes; **EXAM 1 ON WEDNESDAY, OCT 3**
7	10/8	CH 5: Stereochemistry; **QUIZ 3 ON FRIDAY, OCT 12**
8	10/15	CH 6: Understanding Reactions
8-9	10/19	CH 7: Alkyl Halides and Nucleophilic Substitution; **QUIZ 4 ON WEDNESDAY, OCT 24**
10	10/29	CH 8: Alkyl Halides and Elimination; **EXAM 2 ON FRIDAY, NOV 2**
11	11/5	CH 9: Alcohols, Ethers, and Epoxides
12	11/12	CH 10: Alkenes; **QUIZ 5 ON FRIDAY, NOV 16**
13-14	11/19	CH 11: Alkynes
14-15	11/28	CH 12: Oxidation and Reduction; **EXAM 3 ON FRIDAY, NOV 30**

*The instructor reserves the right to modify this schedule with sufficient notice.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations
In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 103, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)
If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

Honor Pledge
As a student of Lake Superior State University, you have pledged to support the Student Honor Code of the College of Engineering & Technology. You will refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer programs, lab reports, quizzes, tests, or exams which are Honor Code violations. Furthermore, you understand and accept the potential consequences of punishable behavior.

CHEM 225 Laboratory Syllabus

Lab Meeting Times: Labs held in 335 Crawford Hall; Mon 2-5 pm (A), Tues 8-11 am (B), and Tues 2-5 pm (C)

Required Laboratory Text: *Multiscale Operational Organic Chemistry,* John Lehman, 2nd Edition

Required Laboratory Items: Approved safety goggles or glasses; lab notebook with gridded duplicate pages

Tentative Laboratory Outline

Week	Date	Reading Assignment
1	8/27	Lehman: Lab Introduction Laboratory/Safety; LAB CHECK-IN Following lab check-in, the second half of lab will be completed in computer lab LBR 333 **PLEASE BRING LAPTOP TO LAB IF POSSIBLE**
2	9/3	NO LAB
3	9/10	Read Appendix I through VII Lehman: Experiment 1 – The Effect of pH on Food Preservation. Minilab 6-Gas Chromatographic Analysis of Commercial Xylene
4	9/17	Mini Lab 3 Purification of Unknown -Part V: Operation 28 Mini Lab 7-Isolation of an Expectorant from Cough Capsules -Part V: Operation 18 Minilab 9 Paper Chromatography of Dyes in Commercial Drink Mixes -Part V: Operation 23
5	9/24	Molecular Models Lab Part V Operation: Instrumentation Section on IR
6	10/1	Lehman: Experiment 2 – Extraction and Evaporation: Separating the Components of Panacetin.
7	10/8	Lehman: Experiment 3 – Recrystallization and Melting-Point Measurement. Extraction and Evaporation: Identifying a Components of Panacetin Part V Operation: Instrumentation section on Gas Chromatography and Mass Spectrometry.
8	10/15	Dry lab on stereochemistry; Determine optical chirality
9	10/22	Lehman: Experiment 4 – Heating Under Reflux: Synthesis of Salicylic Acid from Wintergreen Oil
10	10/29	Lehman: Experiment 4 – Heating Under Reflux: Synthesis of Salicylic Acid from Wintergreen Oil (finish) -Part V Operation: Instrumentation section on NMR.
11	11/5	Lehman: Experiment 5 – Simple Distillation Gas Chromatography Preparation of Synthetic Banana Oil
12	11/12	Lehman: Experiment 5 (finish) Lehman Experiment 15: Thin Layer Chromatographic Analysis of Drug Components -Part V: Operation 22
13	11/19	Experiment 12 – Vacuum Distillation, Optical Activity of a-Pinene; A chemical mystery.
14	11/26	Experiment 14 Properties of Common Functional Groups.
15	12/3	Experiment 14 Properties of Common Functional Groups (finish)

		Experiment 9: Column Chromatography and UV VIS spectrum Isolation of Isomerization of Lycopene from Tomato Paste CLEAN LAB AND CHECKOUT

*The instructor reserves the right to modify this schedule with sufficient notice.

The laboratory portion of the course is intended to familiarize you with common practices and techniques used by organic chemists. Most of the operational practices for each experiment are discussed in the laboratory text, and you should familiarize yourself with them before coming to lab.

Safety: We will discuss safety in first week of lab, but there are some safety practices that will be followed throughout the course of the semester:

1. **APPROVED SAFETY GLASSES OR GOGGLES MUST BE WORN AT ALL TIMES**
2. Appropriate Dress is Required (No open-toed footwear!).
3. No food or drinks are allowed in the lab.
4. No smoking, eating, or drinking in the laboratory.
5. All chemicals, sharps, etc. must be disposed of properly. If you are not sure, ask.
6. **Come to lab prepared!**

Lab Notebook: One crucial practice in organic chemistry is keeping a detailed lab notebook. The notebook should include enough information that another scientist in the field could read your notebook and understand what was done, determine the outcome of the labs, and repeat the experiments. You are expected to keep an up-to-date detailed notebook that will be checked weekly. Write in the notebook with a ball-point pen, crossing through errors. Do not remove original pages from the notebook. Copies of the lab notebook will be due the following week. Also, always date and initial the top of lab pages as you write on them.

As the notebook is such a crucial tool for the organic chemist, you will be primarily graded in the laboratory based on your notebook (**Total lab points = 300 points with most labs being worth 20-30 points**). A handout will be posted on blackboard describing the required format that your laboratory notebook. Some of the details about required sections in the notebook include but are not limited to:

> **Prelab** – A prelab composed of an experiment title, an objective, an introduction (which includes any chemical reactions to be performed and synopses of new techniques), a chemical properties table (molecular weights, densities, boiling point and/or melting points), and a calculations section will need to be completed **before** coming to lab. I will check weekly to ensure that you have completed the prelab. Incomplete or missing prelabs will be cause for a deduction of points from that week's lab. P**rocedure and Observations** – This section will be completed during the lab and will include all steps as you have performed them and all masses as you have weighed them. This section will also include observations such as boiling ranges, melting points, color changes, etc. **Results** – This section will be completed after the lab and will include percent yield, laboratory questions, etc.

The duplicate pages of the lab notebook for each experiment will be handed in for grading one week after completion in your laboratory section. These will be due at the beginning of lab. **If you do not hand in assignments at the beginning of the lab, it is late and it will be assessed a late penalty.**

Clean-up: At the end of the lab period, all reusable labware needs to be cleaned, rinsed with dH_2O and allowed to dry. **All equipment should be returned to their designated location (i.e. back in the Drawer). Water:** We will be using a lot of purified H_2O this semester. If ever in doubt, use distilled water from the special taps located near the sinks at the back of the room.

ATTENDANCE IS MANDATORY FOR ALL LABS. If you have a sanctioned university event that precludes you from attending normal lab time, please let me know by Friday, August 31st.

* The instructor retains the right to change this syllabus as he deem necessary at any time during the semester.

CHEM 226 Organic Chemistry II 4cr. (3,3)

Instructor: Dr. Benjamin F. Lasseter office: CRW 326, phone: 906-635-2284 email: blasseter@lssu.edu

Office Hours: MWF 10-11am, M,W 1-2pm, and T 11am-12pm 1pm-2pm, or by appointment

Course Meeting Times:

Lecture MWF 9-9:50AM, Rm. 205 Crawford Hall

Required Text: *Organic Chemistry,* J.G. Smith, 3rd ed

Course Description: (From the catalog) A continuation of CHEM225 covering the structures, properties, and reactions of aromatic compounds, carbonyl compounds, carboxylic acids and their functional derivatives, phenols, amines, organometallics, carbohydrates, amino acids, and proteins. The course will introduce the study of spectral methods of structure determination and expand the study of organic synthesis and mechanisms. The laboratory will include experiments in spectroscopy, organic synthesis and mechanisms, qualitative organic analysis, and instrumental analysis. Prerequisite: CHEM 225 with a grade of C (2.0) or better.

Course Objectives: At the conclusion of CHEM 226, the student will be able to:

1. **Identify organic functional groups and provide IUPAC names for organic molecules.**
2. **Recognize and identify products of the major types of organic reactions.**
3. **Recognize and describe organic oxidation and reduction reactions.**
4. **Draw appropriate chemical structures and reactions using a mechanistic approach.**
5. **Describe organic acid and base reactions and compounds with an emphasis on pK_a.**
6. **Recognize and interpret stereochemistry and its role in organic and biologically active compounds.**
7. **Conduct laboratory experiments that involve organic synthesis, product purification, and product characterization using both physical property measurements and spectroscopy.**

Schedule

*Week of:	Topics	Smith Chapter
Jan. 10	Course Features, Radical Reactions	15
12	Halogenationof Alkanes	15
14	Radicals of allylic carbons and double bonds	15
Jan. 17	Conjugation and Resonance	16.1 to 16.4
19	Electron delocalization and bonds	16.5 to 16.9
21	Diels Alder Reactions	16.10 to 16.15
Jan. 24	Benzene and nomenclature	17.1 to 17.3
26	Aromatic stability	17.4 to 17.6
28	Huckel's Rule	17.7 to 17.11
Jan. 31	**EXAM 1**	**In class. Chapters 15, 16, 17**
Feb. 2	Electrophilic Aromatic Substitution	18.1 to 18.4
4	Friedel-Crafts Reactions	18.5 to 18.8

Feb. 7	Substituent Effects	18.9 to 18.12
9	Reactions of Substituted Benzene	18.13 to 18.15
11	Carboxylic Acids, Nomenclature and Props.	19.1 to 19.6
Feb. 14	Carboxylic Acids, Synthesis and Reactions	19.7 to 19.10
16	Other acids	19.11 to 19.14
18	Carbonyl Chemistry	20.1 to 20.6
Feb. 21	Organometalic Reagents, Ox. / Red.	20.7 to 20.11
23	α,β- unsaturated Carbonyls, Protecting Grps.	20.12 to 20.16
25	**Exam 2**	**In class, Chapters 18, 19, 20**
Feb. 28	***SPRING BREAK***	**No assignment**
Mar. 2	***SPRING BREAK***	**No assignment**
4	***SPRING BREAK***	**No assignment**
Mar. 7	Aldehydes and Ketones	21.1 to 21.5
9	Reactions of Aldehydes and Ketones	21.6 to 21.10
11	Addition of Amines	21.11 to 21.21.13
Mar. 14	Acetals and Hemiacetals	21.14 to 21.17
16	Carboxylic Acid Derivatives	22.1 to 22.6
18	Reactions of Acid Chlorides and Anhydrides	22.7 to 22.10
Mar. 21	Esters, Amides, and Nitriles. Fibers.	22.11 to 22.18
23	Enols and Enolates	23.1 to 23.4
25	α-carbon reactions	23.5 to 23.7
Mar. 28	Multigroup ester synthesis	23.8 to 23.10
30	**Exam 3**	**In class, Chapters 21, 22, 23**
Apr. 1	Aldol reactions	24.1 to 24.4
Apr. 4	Claisen and Dieckmann Reactions	24.5 to 24.7
6	Michael Reaction and Robinson Annulation	24.8 to 24.9
8	Amines, Nomenclature and Properties	25.1 to 25.5
Apr. 11	Amines, Synthesis and as Bases	25.6 to 25.10
13	Amines as Nucleophiles	25.11 to 25.15
15	Carbon-Carbon Bond Formations	26.1 to 26.4
Apr. 18	**Exam 4**	**In class, chapters 24, 25, 26**
20	Putting it all together, Review	
22	**Practice Exam**	
Apr.25- 29	**Comprehensive ACS Final Exam**	**TBA**

*This is a tentative schedule and may be modified as I deem necessary.

Ground Rules:

Attendance/Absences: Class attendance is mandatory. Laboratory attendance is also mandatory, and absence from laboratory will be regarded the same as an absence from lecture. Attendance will be taken at the start of every class period. Students who are tardy may be considered as absent, but will be expected to speak to the professor at the end of

class. This course will cover material quickly; it is very important that you attend class every period.. It is your responsibility to get any missed material from another student. Attendance for exams is expected.

Exams: All exam grades will be counted for your final score. Makeup exams will be given as quickly as possible through the Academic Services Department, in the event of serious illness or other emergency. A student must request a makeup exam within one class period after missing any exam. Only one makeup will be permitted for any student, except under the most extreme circumstances. A comprehensive American Chemical Society Final Exam will be given during the week of final exams. A special test may be scheduled to substitute for a missed exam due to death in the immediately family, however you must inform me of the absence prior to the exam. In the case of scheduled conflicts (i.e. university sanctioned events), you must make arrangements beforehand to take the exam prior to the event.

Homework: I will be assigning a few selected problems from the text book as we proceed though each chapter. Some exam question may be taken directly from these problems. Homework problems will be part of your final course grade. Homework will be turned in at the start of class, and late work will not be accepted.

Quizzes: There will be quizzes throughout the semester given. Quizzes will be based upon the assigned homework questions. There will be 5 scheduled quizzes given, and a small number of pop-quizzes given in-class. Quizzes will be given in your laboratory section and will last 10 minutes.**Extra Credit:** Each exam except the final will have an extra credit question.

Lab: The purpose of the laboratory in CHEM 226 is to expose you to some of the basic techniques involved in organic research. As seen in the grading scheme below, a major emphasis will be placed on your laboratory participation. Organic Chemistry is a "hands on science", and the labs are designed to expand what is presented in the lecture. See lab syllabus for more details.

Grading: Course grades are NOT curved. Your percentage in the course is meant to represent the amount of material you have mastered, and will be used to determine your final grade. Grades will be broken down as follows:

Component	**Contributing Amt**	**Course Percentage**	**Course Grade**
Laboratory	20%	90.0-92.0 / 92.1-97.9 / 98.0-100.0	A- / A / A+
Homework	20%	80.0-82.0 / 82.1-87.9 / 88.0-89.9	B- / B / B+
Quizzes	10%	70.0-72.0 / 72.1-77.9 / 78.0-79.9	C- / C / C+
Exams	35%	57.0-59.9 / 60.0-65.9 / 66.0-69.9	D- / D / D+
Participation	5%	0 – 56.9	F
Final Exam	10%		
Total	100%		

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*I retain the right to change this syllabus, as I deem necessary at any time during the semester.

CHEM 226 Spring 2010 Organic Chemistry II Laboratory

Instructor: Dr. Benjamin F. Lasseter office: CRW 326, phone: 906-635-2284 email: blasseter@lssu.edu

Lab Time: (Section A) Tuesday, 8:00am to 10:50am. (Section B) Tuesday 2:00pm to 4:50pm

Required Lab text: *Multiscale (or Microscale) Operational Organic Chemistry, Lehman, 2nd ed. 2002*

Required Lab Extras: **Lab Notebook with gridded carbon copy pages (available in the book store), Safety goggles or glasses, and a lab apron or coat (optional).**

The purpose of the laboratory in CHEM 226 is to acquaint you with laboratory techniques encountered in organic research and to give you practical experience in performing organic experiments. The experiments were selected based on the techniques used, the molecules assayed and to some extent application to lecture material.

You will need to purchase a lab notebook with gridded duplicate pages. **Goggles or safety glasses and lab apron are required and your must have them *prior* to the beginning of the lab.** Both notebooks and safety goggles are available at the book store. Other materials needed: several permanent marking pens (Sharpies are the best)

Week of:	**Experiment Name**	***Rpt due***	***Exp. #***
Jan. 10	**Stability of Radicals**	Yes	**Mini 21**
Jan. 17	Reduction of Vanillin, IR Analysis	No	29
Jan. 24	Diels-Alder Reaction	Yes	Mini 27
Jan. 31	NMR ^{13}C and ^{1}H Review, Activity	Yes	Mini 28
Feb. 7	Friedel Crafts Reaction	Yes	Mini 31
Feb. 14	Preparation of DEET		46
Feb. 21	Purif. of DEET, NMR, GC/MS Anal.		46
Feb. 28	**Spring Break- NO LAB**	-	**None**
Mar. 7	Wittig Reaction: p-terphenyl	No	42
Mar. 14	Purification and analysis of p-	Yes	42

	terphenyl		
Mar. 21	Synthesis of Dimedone	No	47
Mar. 28	Purification/ NMR analysis of Dimedone	Yes	47
Apr. 4	Library Research Project, Multistep Synth.	No	57
Apr. 11	Continued Library Research Project	No	57
Apr. 18	Finalized Library Research Project, Submit Notebooks. Possible lab practicum.	Yes	57
	Finals Week	**-**	**None**

In order to complete the labs in the allotted time, you must be familiar with the lab procedure *before the start of the lab period*. Read the complete experiment and associated operations sections before coming to lab. There are no prelab questions, yet you are expected to understand what you will be doing in lab. It will be obvious if you are not prepared. For the last three labs, much of the work will be done in the library. It is a fundamental skill of organic chemical research that you read the work of others when designing your own work. By the time you get this project, you should be so familiar with writing correctly that reading will be an easy task. You will have to develop a completely novel synthesis, and justify all of your steps based upon what is reported in the literature. Therefore, it is important that you understand what you are doing at each step and why you are doing it. In labs that involve more than one week's worth of work, you must take care never to throw anything away. You will be held at fault if you throw away the material that you need to work with for the following week.

Lab attendance/absences: Attendance is mandatory, and there is no possibility of making up a missed lab. Be present, no matter what it takes. Under extreme circumstances, see me.

Lab Notebook: It is imperative that you maintain a complete notebook. *This note book is to be separate from the lab report sheets.* Anyone should be able to take your notebook and understand what was done, what results were obtained, and repeat the experiment. Write in the lab notebook with ballpoint pen, crossing through errors. Do not remove original pages from the notebook. I will collect the duplicate pages when at the end of the semester. The lab notebook is to contain:

1. Your name, course name, and section number on the cover.
2. A table of contents on the first few pages.
3. All your data, calculations, last minute modifications to the protocols, graphs, results, and conclusions must be in the notebook. Do not use scraps of paper to record any of these items.
4. Each page needs to show your name (and your partner's name), date, and experiment title.
5. Results should describe the results obtained (i.e. raw data and all calculations used to obtain "processed" data, tables and rough graphs). Final graphs, to be turned in, should be done on either a computer or with 10 mm x 10 mm graph paper.
6. A general outline of :Introduction, Material and Methods, Data and Results, and Discussion should be followed.
7. Your library research project will involve the proposed synthesis of a novel compound. Include your research and literature notes, and the proposed synthesis. You will have to comment upon every step of your proposed synthesis as the literature dictates.

Safety: 1. **Safety goggles or glasses must be worn at all times!!**
2. Appropriate dress is required including protective apron or coat.
3. Report all injuries to me.
4. No smoking, eating, or drinking in the laboratory.
5. All chemicals, sharps, etc. must be disposed of properly. If you are not sure, ask.
6. Women who are pregnant need to discuss the course with me because of potential and known mutagenic and teratogenic chemicals involved in some experiments.
7. **Come to lab prepared!**

Clean-up: At the end of the lab period, all reusable labware needs to be cleaned, rinsed with dH_2O and allowed to dry. All equipment should be returned to their designated location.

Water: We will be using lots of purified H_2O this semester. In general you should always use distilled water except for external cooling baths.

Assignments to be turned in: Lab assignments will consist of the following:

1. Lab Reports formatted as follows
   p. 1 Title Page
   p. 2 Abstract, double spaced single paragraph
   p. 3 and following: 1) Introduction, 2) Specific Aim, 3) Materials and Methods, 4) Data, Observations, Calculations, Figures, and Graphs, 5) Conclusion
   The lab report will be due at the start of lab the week following the completion of an experiment. If an experiment took multiple weeks, the report will pertain to all the time spent doing the experiment.

2. A proposed synthesis of a novel organic chemical, complete with references and commentary on why each step will work.

* I retain the right to change this syllabus, as I deem necessary at any time during the semester.

CHEM 231 Quantitative Analysis (3,3) 4 Credits

Prerequisites: CHEM 116 with a grade of C (2.0) or better and Math 112 or Math 151.

Instructor: Dr. Christopher Heth
Crawford 319
635-2438
cheth@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
	9-11 AM	9-11 AM	9-11 AM	

OR BY APPOINTMENT

Required Text(s): Quantitative Chemical Analysis by D. C. Harris, 8th ed. (2010), W. H. Freeman, publisher, ISBN: 978-1429218153

Your textbooks are available at the campus bookstore. New, used, rental and digital are options for purchase depending on title. You may use cash, checks, debit and credit cards as forms of tender, including financial aid checks. In addition to in-store purchase, the bookstore also offers the convenience of ordering your textbooks 24/7 online through My.LSSU (Anchor Access) or at www.lssu.bncollege.com.

Other Required Items: Chemical splash goggles (with indirect vents)
Bound composition book (grid preferred)

Recommended Items: Chemical safety glasses
Calculator (statistical functionality preferred)

Course Description: Evaluation of analytical data and study of gravimetric and titrimetric methods of analysis.

Course Objectives: At the conclusion of CHEM 231, a student will be able to:

19. Determine basic statistical measures associated with chemical analysis,
20. Perform gravimetric and volumetric analysis of a variety of analytes, including considerations for precision and accuracy,
21. Properly prepare well-characterized standard solutions from primary standard materials,
22. Describe the effects of changes to an aqueous system in equilibrium,
23. Develop a method for quantification of the components in a complex mixture.

Grading Scale and Policies: The course grade will be based on the points accumulated from homework, quizzes, lab reports, midterm exams, and the final exam, with the breakdown as follows:

Homework/Quizzes: 10%
Midterm Exams: 15% each x 3 (45% total)
Lab Grade: 25%
Final Exam: 20%

Quizzes will be assigned and completed during regular class/lab time, and will not necessarily be announced ahead of time. Class attendance on the day of the quiz will be necessary for completion of the quiz. It will be expected that students complete their own homework assignments and quizzes consistent with the academic integrity policies of this institution.

There will be three (3) midterm exams, with the exam dates to be announced in class at least one week prior to the exam. As the concepts in chemistry build upon each other, be aware that you may encounter material on a midterm exam that was also covered on a previous exam. Additionally, the final exam will be cumulative.

If you will need to miss an exam for a university-sponsored activity, you must inform the professor **AS EARLY AS POSSIBLE PRIOR TO THE DATE OF THE EXAM** so arrangements can be made. Make-ups exams **WILL NOT BE GIVEN** except for the most extreme of emergencies and at the discretion of the instructor. Missed exams will score zero (0) points, so it is therefore critical you attend class to receive notice of and to complete the exams.

Due dates for lab reports and homework assignments will be given at the time of the assignment. Late submission of reports or assignments will be deducted at the rate of 10 percentage points per week or partial week late (i.e an assignment 10 days late will be docked 20 percentage points).

The grading scale is as follows:

A	≥ 94.0%	C	76.9 – 73.0%
A-	93.9 – 90.0%	C-	72.9 – 70.0%
B+	89.9 – 87.0%	D+	69.9 – 67.0%
B	86.9 – 83.0%	D	66.9 – 63.0%
B-	82.9 – 80.9%	D-	62.9 – 60.0%
C+	79.9 – 77.0%	F	< 60.0%

While the professor reserves the right to lower the grade cutoffs based on overall class performance or other factors, these cutoffs will not be raised.

****EXCEPTION**** Failure (< 60%) on the lab portion of the course will result in an overall failure for the class, regardless of the percentage of overall points earned.

Additional extra credit opportunities in the form of in-class activities may also be available at the professor's discretion. These opportunities may not be announced ahead of time and cannot be made up if missed.

Lab Grade: Effective communication is paramount to success as a scientist and in life in general. Therefore, the ability to prepare clear, concise written reports of your work is an important skill you will need to develop. Lab reports are the primary means of evaluation of your laboratory work in CHEM 231, and will be prepared in a fashion similar to that of papers in the ACS journal *Analytical Chemistry*. When grading lab reports, 50% of the score will be based on the quality of the report itself, with the other 50% based on the accuracy and precision of the actual analysis. Tolerances will

become more demanding in each of these areas as the semester progresses. Failure to obtain a passing lab grade (60% or better, see above) will result in failure of the entire course.

Academic Integrity: All work in this course must be completed in a manner consistent with the LSSU Honor Code (http://www.lssu.edu/campuslife/handbook/). Cheating or plagiarism of **any kind** will not be tolerated. Plagiarism for this class will be defined as turning in results, discussion, or analysis that are not (whether stated or implied) the student's original work. Material found on the internet and used without stating where the material came from is just one example of plagiarism. Using the work of others does not automatically constitute plagiarism, and may in fact be encouraged if the work is credited and the source properly cited.

Working through the laboratory data is often better accomplished in a group setting. Please feel free to work together on laboratory calculations, as long as the lab reports are the work of the individual. The focus, however, should be on the understanding, not just the completion, of the laboratory exercise.

University Policies and Statements:
Policies, including those below, are posted on the Provost's website: www.lssu.edu/provost/forms.

- Online and Blended Course Attendance Policy
- The Americans with Disabilities Act & Accommodations
- IPASS (Individual Plan for Academic Student Success)

Tentative Course Outline

At the time of this writing, the specific course outline is still being determined. In general, the course will begin with discussion of error and measurement, followed by discussion of chemical equilibrium and volumetric methods of analysis, then more in-depth discussion of titrations. If time allows other methods of analysis such as electrochemistry, elemental analysis, and spectroscopy will be added where appropriate.

CHEM 251 Introductory Biochemistry (3,3) 4 Credits

College of Natural and Mathematical Fall 2012

Prerequisites: CHEM 226.

Instructor: Dr. M. Werner office: CRW 327, phone: 635-2281 email: mwerner@lssu.edu

Office hours: (In CRW 327) MWF, 1-2PM, TR 8-10AM, **or by appointment**. If I am not in my office I am probably in the lab.

Course Meeting Times:

Lecture M,W,F 11-11:50 AM, Rm. 305 Crawford Hall

Lab Mon. (section A) or Wed. (section B) 2-5 PM, Rm. 308 Crawford Hall

Required Materials:

"*Lippincott's Illustrated Review: Biochemistry" (Harvey and Ferrier) 5th Ed.* ISBN: 978-1-60831-412-6.

Lab notebook with gridded duplicate pages, goggles or lab glasses, Sharpies

Course Description (From the catalog): Introduction to the chemistry of biological molecules, including the general properties and chemical transformations of amino acids, proteins, carbohydrates, lipids and nucleic acids. Emphasis will be on correlating chemical reactions with biological function. An introduction to the intermediary metabolism of the carbohydrates, amino acids, lipids, and nucleic acids will also be presented.

Course Objectives: At the conclusion of CHEM 451, the student will be able to:

1. Draw from memory the structures of all 20 amino acids, the 5 nucleic acid bases, various sugars as well as the structures of biopolymers made from the units.
2. Demonstrate an understanding of protein and enzyme structure, function, mechanism, and inhibition.
3. Demonstrate a detailed understanding of the major metabolic processes used to produce ATP, a process common to all organisms on the planet.
4. Demonstrate an understanding of regulation and the connections between various metabolic pathways both anabolic and catabolic as well as an understanding of disease caused by the disruption of these pathways.
5. Demonstrate an understanding of the "Central Dogma" of biochemistry, and the mechanisms cells utilize to achieve both energy production and information storage.
6. Demonstrate an understanding of the intracellular locations of various metabolic processes discussed and the mechanism of membrane transport used to "divide" cellular labor.
7. Utilize modern laboratory techniques to characterize biomolecules and assay enzymatic activity.

Grading: *I reserve the right to curve the grading scale as I deem necessary.

		Point range	Course grade
Laboratory	360 points	900-920 / 921-979 / 980-1000	A- / A / A+
4 Exams (100 pts. ea.)	400 points	800-820 / 821-879 / 880-899	B- / B / B+
6 Quizzes (20 pts. ea.)	120 points	700-720 / 721-779 / 780-799	C- / C / C+

Final Exam	120 points	570-599 / 600-659 / 660-699	D- / D / D+
Total	1000 points	0 - 569	F

Detailed Topics

*Lecture Date	Topics	Text Chapter
Mon. Aug. 27	DNA Structure, Replication, and Repair	29
Wed. Aug. 29	DNA Structure, Replication, and Repair	29
Fri. Aug. 31	RNA Structure, Synthesis, and Processing	30
Wed. Sept. 5	**NO CLASS – LABOR DAY**	**NO CLASS**
Fri. Sept. 7	**Amino acids**	1
Mon. Sept. 10	Structure of Proteins , Globular Proteins	2,3
Wed. Sept. 12	Globular Proteins; Hemoglobin and others	3
Fri. Sept. 14	Fibrous Proteins (fun activity)	4
Mon. Sept. 17	Enzymes	5
Wed. Sept. 19	Enzymes	5
Fri. Sept. 21	**EXAM #1 (100 pts.)**	**EXAM #1**
Mon. Sept. 24	Introduction to Carbohydrates	7
Wed. Sept. 26	Bioenergetics, Oxidative Phosphorylation and Glycolysis	6-8
Fri. Sept. 28	Glycolysis	8
Mon. Oct. 1	Glycolysis	8
Wed. Oct. 3	Tricarboxylic Acid Cycle	9
Fri. Oct. 5	Gluconeogenesis	10
Mon. Oct. 8	Glycogen metabolism	11
Wed. Oct. 10	Review of Sugar metabolism and Regulation	8-11
Fri. Oct. 12	Metabolism of Mono- and Disaccharides, Glycoproteins	12, 14
Mon. Oct. 15	Pentose Phosphate Pathway and NADPH	13
Wed. Oct. 17	**EXAM #2 (100 pts.)**	**EXAM #2**
Fri. Oct. 19	Photosynthesis	Handout
Mon. Oct. 22	Metabolism of Lipids and Fatty Acid Metabolism	15-16
Wed. Oct. 24	Fatty Acid and Triacylglycerol Metabolism	16
Fri. Oct. 26	Complex Lipid Metabolism	17
Mon. Oct. 29	Cholesterol and Steroid Metabolism	18
Wed. Oct. 31	Cholesterol and Steroid Metabolism	18
Fri. Nov. 2	Amino Acids: Disposal of Nitrogen	19
Mon. Nov. 5	Amino Acids: Disposal of Nitrogen	19
Wed. Nov. 7	Metabolic Effects of Insulin and Glucagon	23
Fri. Nov. 9	Metabolic Effects of Insulin and Glucagon	23
Mon. Nov. 12	**EXAM #3 (100 pts)**	**EXAM #3**
Wed. Nov. 14	Nutrition	27
Fri. Nov. 16	Vitamins	28
Mon. Nov. 19	Protein Synthesis	31
Wed. Nov. 21 **NO CLASS**	**NO CLASS – Thanksgiving Break**	**NO CLASS**
Fri. Nov. 23 **NO CLASS**	**NO CLASS – Thanksgiving Break**	**NO CLASS**
Mon. Nov. 26	Protein Synthesis	31
Wed. Nov. 28	Protein Synthesis	31
Fri. Nov. 30	Regulation of Gene Expression	32
Mon. Dec. 3	**EXAM #4 (100 pts.)**	**EXAM #4**

Wed. Dec. 5	Biotechnology and Human Disease	33
Fri. Dec. 7	Feed/Fast Cycle as review of Metabolism	24
Wed. Dec. 12	**Final Examination**	**10-12AM**

Note: This is a tentative schedule and may be modified as I deem necessary.

Objective: My aim is to introduce you to the concepts necessary for understanding how the biological world works at its most basic level, the chemical level. We will explore how organic chemistry can take place in the "solvent of life", water. This will require a sufficient knowledge of mechanistic organic chemistry and an understanding of the basic functional groups that have been covered in your introductory Organic Chemistry class. I have no doubt that those students that are motivated and disciplined will enjoy this course. Part of learning science is the ability to take in information, highlight the key aspects, and incorporate it into your own learning framework. How do you reach this "zen-like" utopia that we call scholarship? For a start, students need to be able to discuss topics using the vocabulary of the discipline with their peers and teachers. In addition, students need to be able to build their knowledge base by drawing on what they already know. I realize that most of you have varied career plans, but if I can excite just one of you enough to want to take another chemistry course or become involved in biochemical research or applications, I have succeeded in my objective.

Format: **I hope that this course will be completely different than any other course that you have ever taken**. THIS IS AN INTERACTIVE COURSE. IT WILL REQUIRE YOU TO SPEAK, THINK, AND LEARN. What does that mean? It means that you will be expected to take your own notes (Some of you might be thinking, Sacrilege!). It means that you will be expected to know material from a variety of sources: lecture, the text, laboratory, and others. It means that you have to be disciplined (A difficult task for some I know). The textbook does have an online version available once you purchase it as well as some practice student questions.

Blackboard: The course will follow the general layout of the text (although in somewhat different order) and will cover material in most chapters. We will be making use of Blackboard. This website can be accessed from your personal account on Anchor Access (or mylssu). Once you log on to this website, you will be asked for a username and password. I will give these to you during the first lecture. You will then be asked to add the course you are interested in. You should have access to add Biochemistry I (under the Chemistry Section on Blackboard). Follow the directions. Once logged on to the site you should change your password. **If you email me using Blackboard by Friday Aug. 31st , I will give you an extra 10 pts.**

The Blackboard home page for Biochemistry I will include links to the syllabus, course email, extra lab materials, and other support material. In the past, I have required online homework to be completed every three weeks. I am not going to do this for this semester. I do however, recommend that you take a look at the online test questions that are included with your text as well as the end of chapter problems in the text. You may see similar materials later in the semester reappear (hint, hint!!).

Strategy for the Class (or "How do I get a good grade?):

I recommend that you approach each chapter in the following manner:

1. Before we start new material in lecture, read the appropriate sections of the textbook. I have purposely selected a concise text so that reading will not be overly lengthy. **I EXPECT THAT YOU KNOW THE MATERIAL IN THE TEXT, BEFORE LECTURE.**

2. Attend lecture, take notes, and paticipate. I write notes on the blackboard (really a whiteboard, but I'm old school) so you may want to use loose-leaf paper as well. You need to experiment and find what system works best for you.
3. Recopy your lecture notes either later the night after lecture or within 24 hours. This is a very important step in the learning process. Biochemistry is a very visual discipline and the act of re-writing your notes is the best way I have found to solidify the material in long term memory.

Lectures: There will be three lectures a week every Monday, Wednesday, and Friday morning at 11 AM. I will cover the major topics of the individual chapters at an approximate pace of two chapters per week. I will extensively utilize *assorted* visual aids (blackboard, Power Point, overheads, etc.) during the lectures as learning aids, some not from the book.

Attendance/Absences: This course will cover material quickly; it is very important that you attend the weekly lectures. Attendance for all labs and exams is expected.

Exams: There will be at total of 4 exams and a final. **There are no makeups for any reason other than a death in the immediate family or sanctioned University Event**. If you have a conflict with these exams or final exam, **see me by Friday August 31st** (i.e. athletic schedules, etc.). A final exam will be administered on Wed. Dec. 12th at 10:00 AM-12:00 PM in Crawford 305. This exam will have no makeups and will be worth 12% of your grade.

Quizzes: In response to student evaluations, I am going to have 6 quizzes (20 points each) interspersed throughout the semester. These will be given during lab (See lab schedule). The idea is to test you on your knowledge throughout the semester rather than just on the four examination days.

Extra Credit: 10 pts. if you email me on Blackboard by Friday Aug. 31st. No other extra credit will be given except in the form of a question on exams.

Lab: The purpose of the laboratory in CHEM 451 is to expose you to some of the basic techniques involved in biochemical research. As seen in the grading scheme below, a major emphasis will be placed on your laboratory participation. Biochemistry is a "hands on science", and the labs are designed to expand what is presented in the lecture. See lab syllabus for more details.

Regrade Policy: Laboratory reports will ***never*** be regraded. See me before turning them in if you have questions.

*I retain the right to change this syllabus, as I deem necessary at any time during the semester.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. **This authorization must be presented to your instructor before any accommodations can be made.**

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

NOTE: All students who require the use of Disability Services will schedule exams during the same time period that the exams are scheduled for the entire class. This is for both regularly exams during the semester as well as for the final exam.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

HONOR PLEDGE (I have failed students before who did not adhere to this policy)

As a student of Lake Superior State University, you have pledged to support the Student Honor Code of the College of Natural and Mathematical Sciences. You will refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer programs, lab reports, quizzes, tests or exams which are Honor Code violations. Furthermore, you understand and accept the potential consequences of punishable behavior. (Note: this may include failure of the class, academic probation, or expulsion from the University).

CHEM 251 **Introductory Biochemistry Lab**

Fall 2012 Lab Mon. (section A) or Wed. (section B) 2-5 PM, Rm. 308 Crawford

Dr. M. Werner office: CRW 327, phone: 635-2281 email: mwerner@lssu.edu

Required for Lab: Lab Notebook with gridded carbon copy pages (available in the book store), Safety goggles or glasses, your brain and several permanent marking pens (Sharpies are the best).

Materials for lab will be posted on Blackboard. The materials for the first week of lab will be distributed in lab.

The purpose of the laboratory in CHEM 451 is to acquaint you with laboratory techniques encountered in biochemical research and to give you practical experience in performing biochemical experiments. The experiments were selected based on the techniques used, the biochemical molecules assayed, **and to some extent** application to lecture material.

Week of:	**Experiment Name** **(Pts)**
Aug. 27	Check in: Pipeting and Buffers (30 for both)
Sept 3	**NO LAB-Labor Day**
Sept 10 ☺	Spectraphotometry, Beer's Law (30)
Sept. 17 ☺	Determination of Protein Concentration: Standard and Micro-plate (30)
Sept. 24	Introduction to Enzymes, Lactate Dehydrogenase (30)
Oct 1 ☺	Bacterial Transformation w/ Green Fluorescent Protein plasmid (30) **2 DAYS**
Oct 8 ☺	Growth of Bacterial Cell Culture (30) **2 DAYS**
Oct 15	Chromatography of Green Fluorescent Protein (30)
Oct. 22	Protein Electrophoresis of Green Fluorescent Protein (30)
Oct. 29	DNA Restriction Enzyme Digestion and Electrophoresis (30)
Nov. 5 ☺	Biochemical Structural Modeling (bring your laptop to lab)
Nov 12	Biochemical Literature Review, Unknown Enzyme Report Due

Nov. 19	**NO LAB- Thanksgiving**
Nov. 26 ☺	Unknown Enzyme Discussion and preparation
Dec 3	Perform Unknown Enzyme Assay (30)
Dec 13	No lab

Note: Labs are scheduled from 2-5 PM, however, some labs may run over if you are not efficient in lab. Labs the week of Oct. 1rd and 8th will require a brief visit to the lab an extra time during the week.

Note: The ☺ in the lab schedule indicates the lab week when a quiz will be given.

In order to complete the labs in the allotted time, you must be familiar with the lab procedure *before the start of the lab period*. Read the complete experiment and prepare your lab notebook accordingly. Keep in mind, in this biochemistry lab, the results of one week will be used during subsequent weeks. Therefore, it is important that you understand what you are doing at each step and why you are doing it. An error in step 5 of a 6 step procedure means that the previous 4 steps, no matter how well they were done, are for naught. If you are in doubt about what to do, ask, and remember that old lab axiom, "Label everything, and never throw anything away."

Lab attendance/absences: Attendance is mandatory, and remember, "Don't be on time, be early!" Missed labs cannot be made up and will be recorded as a zero. Tardiness will result in loss of points (every 5 min late equals 2 pts) and you may miss important last minute instructions for the experiment. You will work with a partner for most experiments; make sure it is a team effort. If you do miss a lab, make sure that you talk to your partner as well as me to find out what you need to do for the next lab.

Lab Notebook: It is imperative that you maintain a complete notebook. ***This notebook is to have carbon copy pages. I expect it to be neat and legible.*** Anyone should be able to take your notebook and understand what was done, what results were obtained, and repeat the experiment. Write in the lab notebook with ballpoint pen, crossing through errors. Do not remove original pages from the notebook. The legibility and smart appearance of your notebook will be worth 5 pts. for each lab report. Lab notebook pages will be due the following week and will represent your lab report.

The lab notebook is to contain:

1. Your name, course name, and section number on the cover.
2. A table of contents on the first few pages.
3. Each Experiment will have the following sections written out in concise legible English:
   a. Title
   b. Purpose
   c. Materials
   d. Detailed Procedure with diagrams and flow charts
   e. Results, Data, and Calculations
   f. Conclusion
4. All your data, calculations, last minute modifications to the protocols, graphs, results, and conclusions must be in the notebook. Do not use scraps of paper to record any of these items.
5. Each page needs to show your name (and your partner's name), date, and experiment title.
6. Results should describe the results obtained (i.e. raw data and all calculations used to obtain "processed" data, tables and rough graphs). Final graphs, to be turned in, should be done on either a computer or with 10 mm x 10 mm graph paper.
7. Discussion should analyze and interpret results obtained.

Safety:

1. **Safety goggles or glasses must be worn at all times!!**
2. Appropriate dress is required (no open toed shoes).
3. Report all injuries to me.
4. No smoking, eating, or drinking in the laboratory.
5. All chemicals, sharps, etc. must be disposed of properly. If you are not sure, ask.
6. Women who are pregnant need to discuss the course with me because of potential and known mutagenic and teratogenic chemicals involved in some experiments.
7. **Come to lab prepared!**

Clean-up: At the end of the lab period, all reusable labware needs to be cleaned, rinsed with dH_2O and allowed to dry. **All disposable piptette boxes will be refilled**. All equipment should be returned to their designated location.

Assignments to be turned in: Lab assignments will consist of the following:

1. There are NO prelab questions; however, you will be expected to have read the materials in advance and prepared your lab notebook for the laboratory ahead of time.
2. Your notebook pages will be turned in at the beginning of the next lab period and will represent your official " lab report". **If I cannot read your writing, you will get no points.**
2. If you do not hand in assignments at the beginning of the lab, it is late and it will be assessed a late penalty.
3. **I will not accept late lab reports after one week**. Each day late will result in loss of points.

Laboratory Grading:

Total Lab grade, see above	360 points

* I retain the right to change this syllabus, as I deem necessary at any time during the semester.

One final note: I have been in the lab long enough to know that things do not always go as planned when performing an experiment (i.e. you drop the test tube containing your precious enzyme, etc.). I will allow for unforeseeable error, however, if your errors are due to an obvious lack of preparation, leniency will not be forthcoming. In addition, I have upgraded our biochem lab to contain lots of newer "state-of-the-art" equipment. My goal is to teach you many of the common everyday practices done in real industrial or academic research labs using the "tools of the trade". Please treat the equipment with respect.

CHEM332 - Instrumental Analysis (3,3) 4 Credits

Prerequisites: CHEM231

Instructor: Dr. Barb Keller
CRW236
635-2267
bkeller@lssu.edu

Office Hours: 10:00 – 11:00 M
2:00- 3:00 pm F

Required Text(s): *Quantitative Chemical Analysis,* 7th Edition, by Daniel C. Harris
Laboratory Notebook
Chemical Splash Goggles, indirect venting only

Course Description:

This course is the second half of a two semester course in Analytical Chemistry. The course will focus on the theory, application and use of modern analytical chemical instrumentation.

Course Objectives:

Upon completion of this course, the student should be able to:
(Chapter emphasizing each outcome is provided.)
Chapter 14:

- Demonstrate an understanding of the basic concepts of electrochemistry by solving pertinent problems relating to redox reactions, Ohm's law, voltage, work and free energy
- analyze and construct galvanic cells and solve problems relating to such a cell utilizing standard potentials and the Nernst equation
- understand the relationship between standard potentials and chemical equilibrium constants and demonstrate this understanding through problem solving

Chapter 15:

- demonstrate an understanding of the workings of various types of electrodes including reference electrodes, indicator electrodes, pH electrodes, and ion-selective electrodes through problem solving and laboratory use

Chapter 16:

- analyze and construct redox titration curves
- solve redox titration problems
- demonstrate an understanding of redox indicators through problem solving and laboratory work
- demonstrate an understanding of the use of chemical oxidants such as potassium permanganate, cerium (IV), iodine, and sodium thiosulfate through problem solving

Chapter 17:

- conceptualize the methods of electrogravimetric and coulometric analysis through laboratory work and problem solving
- understand the various techniques of voltammetry, including polarography

Chapter 18:

- demonstrate an understanding of the basic concepts of spectophotometry, including the properties of light and Beer's Law and basic instrument design, through problem solving and laboratory work
- describe what can happen (i.e., electronic transitions, fluroescence, phosphorescence, etc) to a molecules when it absorbs light as demonstrated through problem solving and in class discussion

Chapter 19:

- apply Beer's law to complex mixtures as demonstrated through problem solving
- use a Scatchard plot to measure an equilibrium constant as demonstrated through problem solving
- demonstrate, through in-class discussion and problem solving, an understanding of flow injection systems, immunoassay systems, sensors based on luminescence quenching

Chapter 20:

- demonstrate, through laboratory work and problem solving, an understanding of the basic components that make up spectrophotometric instrumentation (including sources of light, monochrometers, detectors, etc.)
- understand the method of Fourier transform spectroscopy and its application to modern instruments of infrared analysis as demonstrated through problem solving and in-class discussion and examination
- understand the basic operation of optodes and their application to analytical chemistry as demonstrated through problem solving and in-class discussion and examination

Chapter 21:

- demonstrate, through laboratory work and problem solving, an understanding of the basic components that make up atomic absorption and atomic emission spectrometric instrumentation, including sources of atomization (flames, graphite furnace, plasmas), lamps (hallow cathode, deuterium) monochrometers, detectors, etc.
- understand (as demonstrated through problem solving and laboratory work) how atomic absorption and atomic emission is affected by temperature, spectral interference, and chemical interference and how to determine detection limits for these instruments

Chapter 22:

- demonstrate through laboratory work and problem solving, an understanding of the basic components that make up different types of mass spectrometers

Chapter 23:

- demonstrate, through problem solving, the analytical process of chromatography including retention time, resolution, plate height and number, capacity factor, etc.
- demonstrate an understanding of the different types of chromatographic separation techniques (adsorption, partition, extraction, ion-exchange, etc) through problem solving and laboratory work

Chapter 24:

- demonstrate, through laboratory work and problem solving, an understanding of the basic components that make up gas chromatography instrumentation, including the various sample injection systems, columns, carrier gases, detectors (including mass spectrometry), etc.

Grading Scale and Policies:

Class:	10 - homework assignments	100 points
	3 - one hour exams	300 points
	1 - final exam	200 points
Lab:**		200 points
Total:		800 points

Extra Credit: During the semester I will offer extra credit problems totaling 20 points that may be used to bring up your grade.

Grade Scale**:**
The final grade will be based upon the total points (730 points). The letter grade given will be as follows:

Points	Letter Grade
758 to 800	A
720 to 757	A-
694 to 719	B+
671 to 693	B
640 to 670	B-
614 to 639	C+
591 to 613	C
560 to 590	C-
533 to 559	D+
510 to 532	D
480 to 509	D-
508 or less	F

Course policies:

***** All exams MUST be taken during the scheduled time. The will be no makeup for missed exams unless you have an excused absence from the Provost's office for travel to participate in university sanctioned activities.*** To accommodate those situations where you may miss an exam due to illness or other events that are not excused absences, I will drop the lowest exam (not the final exam).

**It is MANDATORY that you attend the laboratory. A failing grade in the laboratory will result in a failing grade for the class.

Class attendance is the responsibility of the student. Attendance will not be recorded. However, it is strongly recommended that the student attend all classes as overall student performance on the exams is usually directly related to the student's participation in the class.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

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Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

HONOR CODE

As a student in this course, you are expected to refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, lab reports, quizzes, tests or exams. The consequence of such behavior will be immediate dismissal from the course with a failing grade and a formal report will be sent to the Provost and VP of Academic Affairs.

Tentative Course Outline*

Week of	**Chapter/Topic**
Jan. 10	Chapter 14/Fundamentals of Electrochemistry
Jan. 17	Chapter 14/Fundamentals of Electrochemistry Chapter 15/Electrodes and Potentiometry
Jan. 24	Chapter 15/Electrodes and Potentiometry
Jan. 31	Chapter 16/Redox Titrations **Exam 1** (Chapters 14 and 15)
Feb. 7	Chapter 16/Redox Titrations
Feb. 14	Chapter 17/Electroanalytical Techniques Chapter 18/Fundamentals of Spectrophotometry
Feb. 21	Chapter 18/Fundamentals of Spectrophotometry **Exam 2** (Chapters 16, 17)

Feb 27	Spring Break
Mar. 6	Chapter 19/Applications of Spectrophotometry
Mar. 13	Chapter 20/Spectrophotometers **Exam 3** (Chapters 18,19)
Mar. 20	Chapter 20/Spectrophotometers Chapter 21/Atomic Spectroscopy
Mar. 27	Chapter 21/Atomic Spectroscopy Chapter 22/Mass Spectrometry
Apr. 3	**Exam 4** (Chapters 20,21) Chapter 22/Mass Spectrometry
Apr. 10	Chapter 23/Introduction to Analytical Separations
Apr. 17	Chapter 24/Gas Chromatography
Apr. 24	**Final Exam**

*** Note:** The course syllabus represents the best estimate and projection of course content, scope, and sequence. The syllabus is subject to change based upon the discretion of the instructor.

Laboratory:
The laboratory is organized to allow the student experience in practical chemical instrumental analysis. Whenever possible, the laboratory methods will employ practical techniques of modern instrumental analysis used in academic and industrial laboratories. Write ups for the specific laboratories will be handed out one week in advance. The student is expected to attend the laboratory. Additionally, the student is expected to maintain a professional laboratory notebook and to prepare type written laboratory reports for each laboratory activity using the standard format that is provided. The laboratory reports are due 7 days after the laboratory is completed. Late reports will be accepted only upon permission from the instructor.

Scheduled Laboratories

Week of:	Lab
Jan 10	Lab safety and check-in
Jan 17	Analysis of Acid-Base Titration Curve (pH meter)
Jan 24	Determination of Calcium using an Ion Selective Electrode
Jan 31	Determination of Nitrate using an Ion Selective Electrode
Feb 7	Electrolytic Determination of Copper
Feb 14	Introduction to Spectrophotometry: Spectrophotometric Determination of Iron
Feb 23	Spectrophotometric Determination of Acetylsalicylic Acid in Vitamin Tablets
Feb 27	Spring Break
Mar 6	Determination of Calcium by Atomic Absorption Spectrometry
Mar 13	Analysis of Aluminum by Atomic Absorption Spectrophotometry
Mar 20	Demonstration of Inductively Coupled Plasma Mass Spectrometry
Mar 27	Analysis of Alcohols Using a Gas Chromatograph with a Flame

	Ionization Detector
Apr 3	Analysis of Aromatic Compounds via GCMC
Apr 10 & 21	Analysis of Unknowns with Fourier Transform Infrared and Nuclear Magnetic Resonance Spectrometers
Apr 21	Clean up and check out of lab

Standard Format for Laboratory Reports:
All reports should be typewritten with the exception of the raw data and calculations which may be photocopied from your laboratory notebook and legibly written into the report by hand, respectively. The report should adhere to the general outline below. Depending upon the nature of the experiment, the laboratory instructor may also ask you to include additional sections in your report or may ask you to delete a section of the report.

Outline (Format)

I. Experiment Title, Date, and Your Name
II. Purpose of the Experiment (i.e., what is the experiment designed to do?)
III. Reaction Equations (when appropriate)
IV. General Description of the Experiment and the Observations
V. Raw Data
VI. Calculations (and Graphs if applicable)
VII. Final Results or Conclusions

Safety in the Laboratory

While working in the laboratory you are expected to comply with the safety rules which follow, any and all rules posted in the laboratory or as established by your instructor. Violations of the safety rules endanger both yourselves and other in the laboratory. Students who violate the established rules and procedures may be subject to warnings, reductions in grade, or expulsion from the lab. Safety rule violations include but are not limited to the following:

1. **Laboratory eye protection is required at all times in the laboratory.** Not wearing appropriate safety goggles for the activities assigned is a violation of the safety rules. **Note:** Some activities such as pouring and mixing concentrated reagents require the used of **SPECIAL** chemical splash goggles and perhaps other personal protective equipment. Consult your laboratory instructor and always use the highest level of protection available and appropriate for the task assigned.
2. **Smoking, eating, or drinking in the laboratory is prohibited.**
3. **Pipetting by mouth or otherwise handling chemicals unsafely is prohibited.**
4. **Using an open flame to heat flammable liquids is prohibited.**
5. **Not working under a fume hood when directed to do so is a violation of laboratory safety and subject to actions mentioned above.**
6. **Failing to report or clean up chemical spills or broken equipment is a violation of laboratory safety and subject to actions mentioned above.** Special spill kits are available in the lab to handle a variety of spilled chemicals. Consult the laboratory instructor for guidance using these kits.
7. **Disposing of chemicals improperly. ALWAYS** consult the instructor for the proper handling instructions or location of the designated chemical waste container for the experiment.
8. **Working alone in the laboratory or working outside the regularly scheduled lab times with the permission of the instructor is prohibited.**
9. **Performing unauthorized experiments or mixing unknown is prohibited.**
10. **Engaging in horseplay or other behavior that jeopardizes your safety or the safety of others in the laboratory is prohibited.**

CHEM/EVRN 341 (3,3) Environmental Chem. 4 Cr.

Prerequisites: CHEM225, CHEM 231, and NSCI103

Instructor(s): Derek D. Wright, Ph.D.
315 Crawford Hall, x2628,
dwright1@lssu.edu (*don't forget the 1 after my name)

Office Hours: (other times by appointment)

Monday	Tuesday	Wednesday	Thursday	Friday
8-9		8-9, 10-11, 4-5		8-9

Required Texts: The required text for this course is:

Environmental Chemistry, 9th Edition, by Stanley E. Mannahan

Additional reading from the peer-reviewed literature (scientific journals) relevant to the course content will be assigned from time to time.

Recommended Text: N/A

Course Description: A study of the environmental chemistry of the hydrosphere, atmosphere, lithosphere, and biosphere, the measurement and remediation of water and air quality problems, the toxicology of water and air pollutants, and the environmental aspects of energy use. Prerequisites: CHEM225, CHEM231, and NSCI103. Also listed as EVRN341.

Course Goals: Students will be able to describe the key physical and chemical attributes of the natural water bodies and the important biogeochemical reactions and cycles within each. In the laboratory component of this course, students will gain practical experience in sampling and measuring environmentally relevant species within aquatic systems using modern techniques and instrumentation, as well as data interpretation skills. Students will also develop communication, experimental, and critical thinking skills throughout this course

Course Objectives: At the conclusion of CHEM 341 students will:

24. Be able to quantitatively evaluate the chemistry of aquatic systems
25. Be able to describe the important features of environmental systems
26. Be able to describe the relationships between aquatic chemistry and aquatic organisms
27. Be able to effectively communicate scientific results
28. Be able to critically evaluate scientific results

Grading Scale and Policies:

Point Values:

Class:	3 - one hour exams	300 points
	1 - final exam	200 points

	1 - Research Paper & Presentation	150 points
Lab:**	Lab participation and reports	50 points
Total:		**700 points**

Research Paper/Presentation: Student will complete an independent research paper and in-class 15 minute presentation on an aspect of environmental chemistry. Topics will be selected in consultation with the instructor to compliment the student's field of specialty and interest. The paper should address the application of chemistry to an environmental relevance, should involve the integration of varying viewpoints (where pertinent), and should reflect a critical and thoughtful analysis of the topic. Each paper must include at least one figure or table which illustrates an important aspect of the topic addressed by the research paper. Lengths, without figures and references, should range from 8 to 10 pages. A minimum of eight references from peer-reviewed scientific journals or similar high quality sources (see me if you aren't sure) is required, though typical A papers will contain a greater number. The paper should follow a consistent and recognized format that is used in scientific journals within the discipline, with specific requirements outlined in the style guide. The presentation length should be 15 minutes (including a 3 minute question period). The use of modern presentation technology, is required (Power Point is the preferred format). The presentation will be graded based upon the content, delivery, visuals, and questions. NOTE: Effective writing and communication skills are key to your development as a scientist. **Failure to submit either a research paper and/or the required presentation which meets the minimum requirements outlined herein will result in an automatic failing grade for the course. All submitted papers must strictly adhere to the Style Guide.**

Research papers will be graded based on the following criteria:

Content	70%
Scientific writing style, spelling, and grammar	10%
Formatting (see the Style Guide)	10%
Table(s) and/or Figures(s)	10%

Presentations will be graded based on the following criteria:

Content	50%
Delivery	20%
Visuals	20%
Questions	10%

Laboratory:

The laboratory is organized to allow the student experience in practical environmental testing. Whenever possible, the laboratory methods will employ equipment and practical techniques used in environmental, industrial, and contract laboratories. The student is expected to attend each laboratory meeting. Failure to attend more than 1 laboratory meeting without prior approval from the instructor will result in failure of the laboratory (and therefore the course). Additionally, the student is expected to maintain a professional laboratory notebook and to prepare type written laboratory reports for each laboratory activity using the standard format that is provided. The laboratory reports are typically due 7 days after the laboratory is completed. Late reports will be accepted only upon permission from the instructor.

Grading Scale:

A: 93-100%
A-: 90-92%
B+: 87-89%
B: 83-86%
B-: 80-83%
C+: 77-79%
C: 73-76%
C-: 70-72%
D+: 67-69%
D: 63-66%
D-: 60-62%
F: 0-59%

***Ground Rules*:**

1. Class attendance is the responsibility of the student. Attendance will not be recorded.

   All exams and presentations MUST be taken or given during the scheduled time. There will be no makeup for missed exams/presentations without the prior approval of the instructor – make up exams for other reasons (illness etc.) will be at the instructors discretion. University excused absences (issued only for travel to university sanctioned events that are issued by the Provost's Office) are the only exception to this policy.

   Late Assignments: All assignments handed in after the class period in which they are due will be penalized by 10% per week. All assignments that are not handed in within 2 weeks of the assigned due date will be assigned a grade of 0 points. All assignments are expected to be neatly typed and stapled – hand written and/or unstapled papers will not be accepted. If you need assistance in locating computing facilities on campus, please contact me and I will assist you.
2. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the University Honor Code Procedures. Violations may result in an F for the course grade.
3. Use of head phones, cell phones (and any other electronic devices), and hats during exams is prohibited. All materials containing information relevant to the course must be contained within a backpack or similar container, or a grade of F will be assigned. at the instructors discretion, cheating may also resulting failure of the course and dismissal from the University may result.
4. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class.
5. Students are expected to keep copies of all work submitted for a grade in case of computer failure or similar mishaps.

Safety in the Laboratory:

While working in the laboratory you are expected to comply with the safety rules which follow, any and all rules posted in the laboratory or as established by your instructor. Violations of the safety rules endanger both yourselves and other in the laboratory. Students who violate the established rules and

procedures may be subject to warnings, reductions in grade, or expulsion from the lab. Safety rule violations include but are not limited to the following:

- Laboratory eye protection is required at all times in the laboratory. Not wearing appropriate safety goggles for the activities assigned is a violation of the safety rules. Note: Some activities such as pouring and mixing concentrated reagents require the used of SPECIAL chemical splash goggles and perhaps other personal protective equipment. Consult your laboratory instructor and always use the highest level of protection available and appropriate for the task assigned.
- Smoking, eating, or drinking in the laboratory is prohibited.
- Pipetting by mouth or otherwise handling chemicals unsafely is prohibited.
- Using an open flame to heat flammable liquids is prohibited.
- Not working under a fume hood when directed to do so is a violation of laboratory safety and subject to actions mentioned above.
- Failing to report or clean up chemical spills or broken equipment is a violation of laboratory safety and subject to actions mentioned above. Special spill kits are available in the lab to handle a variety of spilled chemicals. Consult the laboratory instructor for guidance using these kits.
- Disposing of chemicals improperly. ALWAYS consult the instructor for the proper handling instructions or location of the designated chemical waste container for the experiment.
- Working alone in the laboratory or working outside the regularly scheduled lab times with the permission of the instructor is prohibited.
- Performing unauthorized experiments or mixing unknown is prohibited.
- Engaging in horseplay or other behavior that jeopardizes your safety or the safety of others in the laboratory is prohibited.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations
In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

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Tentative Course Outline

Week of:	Day	Topic	Assignment
29-Aug	M	Class intro/Science writing	-
	W	Environmental Chemistry	CH 1
	F	Environmental Chemistry	CH 1
5-Sep	M	**No Class**	-
	W	Freshwater Systems	-
	F	Freshwater Systems	-
12-Sep	M	Aquatic Chemistry: Composition, Ionic Strength & Equilibrium	CH 3
	W	Aquatic Chemistry: Carbonate System, DIC, and Alk	CH 3
	F	Aquatic Chemistry: Carbonate System, DIC, and Alk	CH 3
19-Sep	M	Aquatic Chemistry: Carbonate System, DIC, and Alk	CH 3
	W	Redox	CH 4
	F	Redox	CH 4
26-Sep	M	Redox	CH 4
	W	Phase Interactions	CH 5
	F	Phase Interactions	CH 5
3-Oct	M	Aquatic Microbial Chemistry	CH 6
	W	Marine Chemistry	-
	F	Water Pollution	CH 7
10-Oct	M	Water Pollution	CH 7
	W	**Exam 1**	
	F	Atmosphere and Atmospheric Chemistry	CH 9
17-Oct	M	Atmosphere and Atmospheric Chemistry	CH 9
	W	Particles in the Atmosphere	CH 10
	F	Particles in the Atmosphere	CH 10
24-Oct	M	Gaseous Inorganic Air Pollutants	CH 11
	W	Gaseous Inorganic Air Pollutants	CH 11
	F	Organic Air Pollutants	CH 12
31-Oct	M	Organic Air Pollutants	CH 12
	W	Photochemical Smog	CH 13
	F	Photochemical Smog	CH 13
7-Nov	M	Climate and Climate Change	CH 14
	W	Climate and Climate Change	CH 14
	F	Climate and Climate Change	CH 14
14-Nov	M	Climate and Climate Change	CH 14
	W	**Exam 2**	
	F	Geosphere and Geochemistry	CH 15
21-Nov	M	Geosphere and Geochemistry	CH 15
	W	**No Class**	-
	F	**No Class**	-
28-Nov	M	Geosphere and Geochemistry	CH 15
	W	Soil and Soil Chemistry	CH 16
	F	Soil and Soil Chemistry	CH 16
5-Dec	M	Soil and Soil Chemistry	CH 16
	W	Resources and Energy	CH 18
	F	Resources and Energy	CH 18
12-Dec		**Final exam - Time TBA**	-

Lab Syllabus

1 Sampling Prep and Planning, Stratification in Lakes
2 Water Sampling, Ashmun Creek/Hydrolab/VOC Analysis by Purge & Trap GC/MS
3 Water Quality Parameters: Alk, Hardness, Chloride, Silica
4 Water Quality Parameters: Major Ions (Na, K) by FAAS
5 Water Quality Parameters: N (nitrate/nitrite, ammonia, TKN)
6 Water Quality Parameters: P (phosphate, Total P)
7 Turkey Lakes Research Area Field Trip
8 Atmospheric Sampling I: Hi Vol/Total insoluble partles/Atmospheric Dep
9 Soil Sampling, Texture Analysis, Organic Matter by LOI
10 Atmospheric Sampling II: Sample Analysis, Mass and Anions
11 Atmospheric Sampling III: Sample Analysis, Trace Metals by ICP-MS
12 Determination of Al in Soil I: Digestion & Fusion
13 Determination of Al in Sil I: Analysis of FAAS
14 Project Results

COMM 101 Fund. of Speech Communication 3 Cr

Prerequisites:

Instructor: Aaron Kopitz
Arts Center 257
906-635-2224
AJKOPITZ@LSSU.EDU

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
	2-4:30pm		2-4:30pm	

Required Text(s): Rothwell, J. D. (2010). In the company of others an introduction to communication. New York: Oxford University Press.
ISBN: 9780195336306

Course Description: A study of communication theory as it relates to the oral sender and receiver in interpersonal, dyadic, small group, and public speaking situations. Application will be in perceptual analysis, dyadic encounters, small group problem-solving and discussion, and public speaking situations.

Course Objectives: At the conclusion of COMM 101, a student will be able to:

29. Analyze, develop, and produce rhetorically complex texts.
30. Communicate competently in a variety of contexts.
31. Identify and differentiate different types of listening.

***Course Policies*:**

16. **Attendance** is a must. You must attend class in order to learn and be apart of our learning group. Lack of attendance will result in a reduction of your final grade.
    i. If a student is found to be missing 20% (8 classes) a full letter grade will be automatically dropped in addition to the penalty of participation.
    ii. Students are permitted two absences for reasons beyond their control, i.e. death in the family, medical emergency.
    iii. Absence on presentation days incurs double penalty to attendance.
    iv. Student-athletes should obtain a note from the provost and must turn in assignments by the scheduled date. Failure to do either will result in a zero for the assignment and absence.

17. Students are expected to perform all assigned work themselves unless otherwise noted. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
18. **General Electronic Device Policy:** Laptops are welcomed as long as they are not a distraction to the instructor or other students. All laptops should be closed during student presentations.
19. **Cell Phone Policy:** Don't even think about it. Unless you are using your phone for research reasons and permission has been granted prior to using it. If found using your cellphone in

class without permission, especially during student speeches, you will find your behavior curtly corrected.

20. All work must be typed, 12 point Times New Roman font and double-spaced.

21. Assignments will be managed using Blackboard Learning System. It is your responsibility to familiarize yourself with the technology.

22. Extra credit: Extra credit may be given throughout the semester at the discretion of the instructor. You cannot turn in extra credit assignments if you have missed one of the three required speech assignments.

23. Make up policy:

a. Written assignments/tests:

i. Course work missed will not be given an opportunity to be made up.

b. Speeches:

i. Students are responsible for making arrangements with fellow classmates to resolve personal schedule conflicts.

ii. If class time permits, the instructor will allow students to give make up speeches if informed prior to class of their preparedness.

iii. All make up speeches will incur a fifteen percent reduction to their final grade.

Grading Scale and Policies:

Point Values:

Quizzes (5)	300 points
Attendance	100 points
Participation	50 points
Declamation Speech	75 points
Informative Speech	150 points
Group Presentation	200 points
Papers (2)	50 points (25 each)
-Spot a liar assignment	
-Application Essay	
Journal	75 points
-Declamation Self-Critique	
-Informative Self-Critique	
- Group critique (confidential)	

Total 1000 points

Grading Scale:

		70-77	C
95-100	A	68-69	C-
90-94	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

Something to note:

As an instructor I do not tolerate classroom **incivility**. The above-mentioned policies touch on the most common forms of incivility but I would like to formally mention a few others I do not appreciate and will take note of during our time together. Packing up early, talking while I or someone else is sharing or explaining a thought, coming to class ill-prepared, leaving class early, eating in class, taunting or belittling other students, challenging the instructor's knowledge or credibility in class and sleeping in class. This is an environment of respect and learning, lets be civil about it.

Chance of schedule change is likely due to weather or other unforeseen circumstances. It is the student's responsibility to maintain understanding of schedule changes.

Tentative Course Outline

Session Number	Week	Day	Date	Topic	Readings	Assignment Due
1	1	M	8/27	Class Orientation		
2	1	W	8/29	Competent communication	Ch.1	
3	1	F	8/31	Perception of self and others	Ch.2	
	2	M	9/3	**LABOR DAY RECESS**		
4	2	W	9/5	Culture and Gender	Ch.3	Quiz #1 ch.1-3
5	2	F	9/7	Keeping it real		
6	3	M	9/10	Language use and abuse	Ch.4	
7	3	W	9/12	Nonverbal communication	Ch.5	
8	3	F	9/14	Listening	Ch.6	Quiz #2 ch.4-6
9	4	M	9/17	Declamation prep.		
10	4	W	9/19	*Declamation Speech Speakers 1-6*		
11	4	F	9/21	*Declamation Speech Speakers 7-12*		Self critique 1-6
12	5	M	9/24	*Declamation Speech Speakers 13-18*		Self critique 7-12
13	5	W	9/26	*Declamation Speech Speakers 19-24*		Self critique 13-18
14	5	F	9/28	Small group construction	Ch.10	Self critique 19-24
15	6	M	10/1	Group contract construction		
16	6	W	10/3	Being an effective group	Ch.11	Quiz#3 ch.10-11
17	6	F	10/5	Group trials and tribulations		
18 MG	7	M	10/8	Preparing your speech	Ch.12	
19	7	W	10/10	In-class assignment,		
20	7	F	10/12	Presenting your speech	Ch.13	
21	8	M	10/15	In-class assignment		Spot a liar paper
22	8	W	10/17	Group evaluations		
23	8	F	10/19	Informative speeches	Ch.14	
24	9	M	10/22	Persuasive speeches	Ch.15	Quiz#4 ch.12-15
25	9	W	10/24	In-class assignment		
26	9	F	10/26	Info. Speech prep.		
27	10	M	10/29	*Informative Speech speakers 1-5*		
28	10	W	10/31	*Informative Speech speakers 6-10*		Self critique 1-5
29	10	F	11/2	*Informative Speech speakers 11-15*		Self critique 6-10
30	11	M	11/5	*Informative Speech speakers 16-20*		Self critique 11-15
31	11	W	11/7	*Informative Speech speakers 21-24*		Self critique 16-20
32	11	F	11/9	Informative speech review		Self critique 21-24
33	12	M	11/12	The use of power	Ch.7	

34	12	W	11/14	The relationship thing	Ch.8	
35	12	F	11/16	Paper assignment		NCA
36	13	M	11/19	TBA		Paper assignment due
	13	W	11/21	**THANKSGIVING RECESS**		
	13	F	11/23	**THANKSGIVING RECESS**		
37	14	M	11/26	Conflict	Ch.9	Quiz#5ch.7-9
38	14	W	11/28	Video application ch.7-9		
39	14	F	11/30	Group Presentation #1		
40	15	M	12/3	Group Presentation #2		
41	15	W	12/5	Group Presentation #3		
42	15	F	12/7	Group Presentation #4		
43	Exam week	M	12/10	**10-11 AM CLASS**		Group Presentation #5
		T	12/11	**3-4 PM CLASS**		
		W	12/12	**1-2 PM CLASS**		

University Policies and Statements:

Online and Blended Course Attendance Policy
Students in online or blended classes are required to log in to the Course Management System (Blackboard, Wimba, TaskStream, etc.) and complete at least one "Academic Related Activity" within the Add/Drop period.

The Americans with Disabilities Act & Accommodations
In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

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ECON 202 Principles of Microeconomics 3 Cr.

Prerequisites: Two years of high school algebra or equivalent score on ACT or Placement Exam or Math 102.

Instructor: Robert Boston
Office: LIB 221
Email: rboston@lssu.edu
Phone: (906)635-2736

Class Meetings: M/W/F from 10:00-10:50am CAS 311

Office Hours: ANYTIME BY APPOINTMENT

Monday	Tuesday	Wednesday	Thursday	Friday
1:00-2:45		1:00-2:45		1:00-2:45

Required Text(s): Principles of Microeconomics by N. Gregory Mankiw, 6th Edition, Thomson, Southwestern

Your textbooks are available at the campus bookstore. New, used, rental and digital are options for purchase depending on title. You may use cash, checks, debit and credit cards as forms of tender, including financial aid checks. In addition to in-store purchase, the bookstore also offers the convenience of ordering your textbooks 24/7 online through My LSSU (Anchor Access) or at www.lssu.bncollege.com.

Course Description: Principles of economic reasoning; supply and demand analysis; theories of production; price and output determination under each of the four market structures; factor returns and income distribution theories; public policy implications. Prerequisite: Two years of high school algebra and equivalent/satisfactory score on ACT or Placement Exam or MATH102 with a grade of C or better.

Course Goals: To provide students with a foundation of supply and demand analysis; theories of production; price and output determination under each of the four market structures; factor returns and income distribution theories and public policy implications.

Course Objectives: Upon completion of this course, students should be able to:

32. Analyze the impact of a multiple of events on price and quantity.
33. Calculate and interpret elasticities.
34. Evaluate the impact of price floors, price ceilings and taxes on price and quantity.
35. Evaluate profit maximization, based on production functions.
36. Understand and solve game theory problems.

General Education Objectives:
Specifically, students will be able to: Solve problems presented in the context of real world situations with emphasis on model creation, prediction and interpretation. This will be done using multiple perspectives (formulas, tables, graphs, and words) and will include fitting an appropriate curve to a scatter plot.

Grading Scale and Policies:
Point Values:

Exam #1	30 points
Exam #2	30 points
Final Exam	25 points
Three Quizzes(5 each)	15points
	Total 100points

Grading Scale:

98-100	A+	70-77	C
92-97	A	68-69	C-
90-91	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

***Course Policies*:**

24. Attending class, completing assignments on time, and keeping up with the class material is important for success in this course and in college. **Timely attendance is a must** unless pre-approved by the instructor, late or missed assignments **will not** be accepted except for legitimate **(pre-approved when possible)** reasons as determined by the instructor. Examples of legitimate reasons are: illness, death in family, etc.

    LSSU sanctioned travel related absences (athletics, conference presentations, conference attendance) are approved by the Provost. I will accommodate students in these situations. However, students are expected to make arrangements with the instructor before the travel occurs. Failure to do so may result in "F" grades being assigned for the missed work.
25. Students are expected to perform all assigned work themselves unless otherwise noted. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.

26. General Electronic Device Policy: Calculators/computers allowed as specified by instructor.

27. Cell Phone Policy: No cell phone use in class!

University Policies and Statements:
Policies, including those below, are posted on the Provost's website: www.lssu.edu/provost/forms.

- Online and Blended Course Attendance Policy

- The Americans with Disabilities Act & Accommodations
- IPASS (Individual Plan for Academic Student Success)

Tentative Course Outline

Session Number	Week	Chapter
Lecture	1	Chapter #1
Lecture	2	Chapter #2
Lecture	3	Chapter #3 Quiz #1
Lecture	4	Chapter #4
Lecture	5	Chapter #5 Exam #1
Lecture	6	Chapter #6
Lecture	7	Chapter #7
Lecture	8	Chapter #8 Quiz #2
Lecture	9	Chapter #9
Lecture	10	Chapter #10 Exam #2
Lecture	11	Chapter #11
Lecture	12	Chapter #12
Lecture	13	Chapter #13 Quiz #3
Lecture	14	Chapter #14
Lecture	15	Chapter #15
Lecture	16	Chapter #16 Final Exam TBA

ECON307: Environmental Economics 3 Cr

PREREQUISITES: Completion of Pre-Business Core and ECON 202 (Microeconomics)

INSTRUCTOR: Christopher S. Brunt, Ph.D.

OFFICE: 319 LIB

PHONE: (906) 635-6682

EMAIL: cbrunt@lssu.edu (preferred contact, include course number and section in the subject heading if you want your email answered)

CLASS MEETINGS: Tuesday/Thursday from 3:30-4:50 pm in 305 Crawford Hall

OFFICE HOURS: Office hours will be according to the following schedule and by appointment.

Monday	Tuesday	Wednesday	Thursday	Friday
1-2pm	12:30-2:30pm	1-2pm	12:30-1:30pm	-

REQUIRED MATERIALS: Environmental Economics & Management by Scoot Callan and Janet Thomas, 4th Edition, ISBN 0-324-32067-1.

RECOMMENDED MATERIALS: Colored pens or pencils, and a ruler

COURSE DESCRIPTION: This course examines the application of economic analysis to problems of air, water, forests, fisheries, energy, and soil use; economic approaches to valuing the environment; the benefits and costs of pollution control; and alternative policy approaches to environmental problems with emphasis on emissions trading.

COURSE GOALS: To provide students with an understanding of externalities as they relate to the environment, the benefit-cost analysis associated with environmental decision making with applications to specific prob- lems.

COURSE OBJECTIVES: Upon completion of this course students should be able to:

1. Model environmental problems using economic models
2. Apply the Coase Theorem to environmental problems
3. Correct market inefficiency in economic models through the application of: (a) Abatements (b) Market based approaches
4. Assess costs and benefits of environmental decision making
5. Evaluate project's social efficiency as the relate to potentially covered cases of: (a) Water (b) Air (c) Solid Wastes

GRADING SCALES & POLICIES: Your Grade will be determined on the following basis:

Exam 1 (Chapters 1-5) 25% Exam 2 (Chapters 6-9) 25% Final Exam (or Paper) 25% Journal Article Summaries (3) 25% Total 100%

Grading Scale:

A+		A	93-100	A-	90-93
B+	86-90	B	83-86	B-	80-83
C+	76-80	C	73-76	C-	70-73
D+	66-70	D	63-66	D-	59-63

The grade of A+ will only be given to students demonstrating an unquestionable mastery of the subject matter.

Exams: Exams will be given in class and may require Lake Superior State University Testing Sheets (available in AV) or blue books.

Journal Article Summaries Students will be expected to complete three summaries of peer reviewed publications within the realm of environmental economics. Any articles (comments on articles are not acceptable) from the following list are acceptable:
Journal of Environmental Economics and Management (JEEM) Ecological Economics (EE) American Journal of Agricultural Economics (AJAE) Resource and Energy Economics (REE) Energy Journal (EJ) Australian Journal of Agricultural and Resource Economics (AJARE) Land Economics (Land) Environmental and Resource Economics (ERE) Environment and Development Economics (EDE) Journal of Agricultural and Resource Economics (JARE)
Articles from other journals or sources will need my approval. Summaries should be 12 point, double spaced, and submitted in PDF format, 1-3 page maximum length. A copy of the article (electronic or print) should also be provided.
Final Exam & Paper: Students may elect to take the final exam or engage in a independent/group re- search project. During the first week of class, I will ask you to choose your grading method. Your grading method selection is irreversible.
Makeup Policy and Absences: • LSSU sanctioned travel related absences (athletics, conference pre- sentations, conference attendance) are approved by the Provost. Instructors are expected to accommodate students in these situations. However, students are expected to make arrange- ments with the instructor before the travel occurs. Failure to make arrangements with me prior to travel will result in "F" grades being assigned for the missed work.
• Non-sanctioned absences will be assessed by the instructor and are subject to the instructors discretion.
Plagiarism and Cheating: Students are expected to perform all assigned work themselves unless oth- erwise noted. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
Curving: The instructor reserves the right to (not) curve grades in a uniform manner.

THE AMERICANS WITH DISABILITIES ACT & ACCOMMODATIONS: In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed - based on the impact of a disability - should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success) If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

COURSE OUTLINE: The following represents a tentative order of chapters and exams:

1. The Role of Economics in Environmental Management.
2. Modeling the Market Process: A Review of the Basics.
3. Modeling Market Failure.
4. Conventional Solutions to Environmental Problems: The Command-and-Control Approach.
5. Economic Solutions to Environmental Problems: The Market Approach. Exam 1
6. Environmental Risk Analysis.
7. Assessing Benefits for Environmental Decision Making.
8. Assessing Costs for Environmental Decision Making.
9. Benefit-Cost Analysis in Environmental Decision Making. Exam 2
10-21. Select topics associated with water, air, solid wastes/toxic substances, global environmental management. Final Exam

BLACKBOARD: Quiz and Exam scores will be available through the my grades tab. You should always be able to track your progress in this class through blackboard. Blackboard can be accessed directly through the following address: http://bb8.lssu.edu/

ENGL 110, First Year Composition I 3 Cr.

Prerequisites: English ACT score of 18 or a C or higher in ENGL091

Instructor: Ms. Julie Barbour
KJS Library 322
635-2657
jbarbour@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
10-12		10-12		10-11:30

Required Texts: *50 Essays: A Portable Anthology*, Third Edition, Samuel Cohen
A Writer's Reference, Seventh Edition, Diana Hacker

Recommended Text: A dictionary

Course Description: ENGL110 provides students with an introduction to the discipline of writing through an exploration of their own writing processes and products. Emphasis is placed on students learning to think critically about their own writing in order to address issues of coherence, grammar, mechanics, organization, clarity and content. Other material covered includes the role of literacy in society, the ways in which readers engage text, and the role of writing at the college level.

Course Objectives: At the conclusion of ENGL110, the student will be able to:

- Use writing and reading for inquiry, learning, and communicating
- Analyze and synthesize primary and secondary sources in their writing
- Integrate the voices and work of others into their writing and distinguish that thinking and material from their own
- Control surface features of syntax, grammar, punctuation, and spelling
- Demonstrate academic integrity

(View other departmental outcomes at the end of this syllabus)

General Education Objectives:
This course fulfills 3 hours of the Communication requirement to analyze, develop and produce rhetorically complex texts.

Grading Scale and Policies:
Point Values:

Participation and daily work:	25
Essay 1:	20
Essay 2:	25
Essay 3:	30
Total points:	**100**

Final exam: The final essay, plus a personal reflection of your writing throughout the semester, will be the final written exam for this class. Due dates and times are compatible with the LSSU Final Exam Schedule.

Grading Scale:

A+ (97-100); A (93-96); A- (92-90)
B+ (87-89); B (83-86); B- (82-80)
C+ (77-79); C (73-76); C- (72-70)
D+ (67-69); D (63-66); D- (62-60)

Attendance: Since this is a writing class, attendance is critical in improving your writing skills. We cover a lot of material each class, and in-class writings and group work will take place regularly. ***You are allowed a total of 3 unexcused absences.*** Except for medical appointments, please do not make other appointments during class time. You are responsible for obtaining notes or handouts from the days you miss class. If outside circumstances are keeping you from attending class, please see me.

Timeliness: A student who is chronically late for class communicates disrespect for not only the subject of the class but also the instructor and the other students in the class. If you are regularly more than five minutes late for class, it will be recorded as an absence.

Participation: Participation constitutes 25 percent of your final grade. You will be expected to participate in class discussion, peer reviews, and group work. In-class and out-of-class writing assignments, and reading assignments are also included in this grade. Please come prepared each day ready to discuss the assigned material and make an effort to speak up in class. I take each student's contribution into consideration when tallying final grades. Thus, when you are absent, I notice. Everyone has something important to contribute to class, no matter how small or large. Your presence counts.

Assignments: You will receive a schedule for each unit. Any changes to the syllabus or schedule will be noted in class. *Please keep your syllabus and schedule handy to refer to during the semester*. Email submissions of essays *will not* be accepted. Submit all assignments in hard copy on the day they are due (this includes out-of-class writing assignments and major essays). Except for in-class writings, all assignments must be typed, double spaced, using 12 point font (Arial, Times New Roman, or comparable), and use MLA formatting. See your handbook for examples.

Structured Learning Assistance: If, after the initial writings of the class, I note that you have some mechanical weaknesses in your writing, I will ask you to visit the writing center and work with a coach on that weakness. For instance, if I notice several sentence fragments in your writing sample, or in your first essay, you will be required to complete one or two writing center appointments to give you an opportunity to gain control over the fragments in your work. If you choose not to make and keep these appointments, it will be reflected in your essay and participation grades.

Late Policy: Each writing assignment is due at the beginning of class on its respective due date. Any assignment turned in 24 hours after its deadline will automatically receive a D.

If you have a legitimate absence, you will not be penalized, *as long as you make up any associated daily work and turn the assignment in by the next class meeting.*

Extra credit: I do not give extra credit.

Revision: Because revision is an integral part of the writing process, you will be allowed to revise one of the first two assignments for a better grade. ***If you choose this option, you must submit the revision with the graded version by December 1.*** I am under no obligation to raise your grade simply because you revise an essay.

***Ground Rules*:**

- Be on time for class.
- All cell phones must be turned off and stored away before class begins. Texting is not allowed in class.
- Laptops are not allowed in class unless by permission of instructor.
- Please respect the other students in the classroom. If you have a statement to make, wait until the speaker is finished, and then take your turn. Otherwise, please do not pass notes or whisper to your neighbor while I or another class member is speaking. Save your personal conversations, both in person and by text, for non-class time.
- If it necessary for you to leave the room briefly, please exit and return quietly.
- Food is not allowed in the classroom. Drinks are allowed as long as the bottle can be capped so it will not spill. If you happen to make a mess, please clean it up before you leave.
- Others will be added as deemed necessary.

***University Policies and Statements*:**

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

Academic Integrity Policy

Academic integrity is a key component of the core values of Lake Superior State University. All members of the University community are expected to be honorable and ethical and observe standards of conduct appropriate to a community of scholars. Students are expected to behave in an ethical manner. The University community will not tolerate academic dishonesty as such behavior will cause harm to the reputation of students, faculty, and graduates of the institution. Such dishonorable behavior includes, but is not limited to, cheating, fabrication, plagiarism, and obtaining an unfair advantage. These terms are defined below:

Cheating
Cheating is defined as using or attempting to use unauthorized materials or information of any kind during an exam or graded assignment of any kind. Using notes, texts, help

from individuals, or copying information from another individual's exam, or by using electronic or any other means constitutes cheating unless such resources are EXPLICITLY allowed by the instructor.

Plagiarism
Plagiarism is representing someone else's work as one's own. Failing to cite references or presenting material, verbatim or paraphrased that is not acknowledged and cited also constitutes plagiarism.

Possible Sanctions for Offenses
It is in the best interest of the University community to sanction any individual who chooses not to accept the principles of academic honesty by engaging in the above acts. Appropriate sanctions may include failure of an assignment or exam, failure of a course, or dismissal from the University.

Read more about this policy at http://www.lssu.edu/hlc/materials/ssrr/CH2/CH2-p106_Academic%20Integrity%20Policy.pdf

Outline of Unit Schedules

Essay Number	Date	Topic/Unit Essay	Reading Assignments	Essay Due
1	8/27-10/1	Place Narrative/Autoethnography	(Please see Individual Unit Plans)	10/1
2	10/3-11/5	Expository Essay	(Please see Individual Unit Plans)	11/5
3	11/7-12/7	Research and Authority Essay	(Please see Individual Unit Plans)	Final Exam Time (see Unit 3 or Final Exam schedule)

(Topical Outline for Instructor Only)

Topical Outline for ABCD101 (3 credits)	**% of time spent**
• Initial Course topics to be covered	20
• Additional Course Topics	30
• Subsequent Topics	30
• Final Topics	20
Total	100%

ENGL110 Outcomes (12/07)

Rhetorical Knowledge
By the end of ENGL110, students should be able to:

- Establish a clear purpose for writing and develop a strategy that sustains that purpose
- Identify and respond to the needs of different audiences (including personal, public, and professional)
- Understand and apply voice, tone, persuasive appeals, and level of formality appropriate to the rhetorical situation

- Use various modes of discourse to develop a piece of writing

Critical Thinking, Reading, and Writing
By the end of ENGL110, students should be able to:

- Use writing and reading for inquiry, learning, and communicating
- Analyze and synthesize primary and secondary sources in their writing
- Recognize the ways writers use language to make claims to authority

Processes
By the end of ENGL110, students should be able to:

- Practice writing as an ongoing process that uses later invention and re-thinking to revise a text
- Employ the collaborative and social aspects of writing processes, *i.e.*, balance relying on formal and informal authority figures with accepting responsibility for doing their part
- Critique their own and others' works
- Work through multiple drafts to create and complete a rhetorically complex text
- Demonstrate flexible strategies for drafting, revising, editing, and proof-reading

Knowledge of Conventions
By the end of ENGL110, students should be able to:

- Apply appropriate genre conventions to their writing, including
    - Structure (sentence, paragraph, and essay levels)
    - Tone
    - Voice (personal, public, and professional)
    - Mechanics
- Integrate the voices and work of others into their writing and distinguish that thinking and material from their own
- Control surface features of syntax, grammar, punctuation, and spelling
- Employ and build on the conventions learned in previous English and Communication courses
- Demonstrate academic integrity

Grading Criteria

C Competent Performance

An essay receiving a "C" fulfills the criteria for the assignment given. The essay communicates a theme and establishes a purpose. For the most part, it is organized in a series of general ideas and observations, which to some degree are developed with specific examples, illustrations, evidence, and reasoning. As a rule, its prose is functional, reasonably clear and correct.

B Better than Average Performance

A "B" grade means a level of performance ***above the average*** of most first-year college writers. An essay receiving a "B" not only fulfills criteria for the assignment; it goes beyond basic expectations in one or another respect—in complexity of thought, degree of development, expressiveness in prose style, etc.—without notable deficiencies in other aspects. Its prose is mostly capable, with varied sentences and effective word choices.

A Exceptional Performance

An "A" grade reflects a level of performance ***well beyond*** that of most first-year college writers. An essay receiving an "A" fulfills all assignment criteria in a thorough, complex, and resourceful manner. It demonstrates a comprehensive, nuanced grasp of the subject under discussion, a capacity to establish a stance and develop observations without oversimplifying or distorting the issue at hand. Prose style is mature and assured, marked by variety, emphasis, continuity, and imagination.

D Minimal Performance

A "D" grade indicates a **less than passing** performance, not adequate to college-level writing. While the essay may address the general intent and meet some criteria of the assignment, it neglects or falls short in others. Prose style may be simplistic, confusing, or repetitious, with words used incorrectly or imprecisely.

F Unacceptable Performance

The "F" grade is assigned to work that fails to meet minimum standards of performance in writing. An essay receiving an "F" generally reflects an inability or unwillingness to address the assignment, to follow instructions, to read carefully and critically, to establish a purpose and stance, to communicate requisite information, to develop general ideas with specific evidence in a logical, attentive manner, or to connect ideas in a coherent discussion or argument. The prose may be difficult to follow: disconnected, illogical, repetitive, meandering, or marred by a distracting number of errors.

Most "F" grades result from absences or failure to turn in assignments.

ENGL 110
Fall 2012
Ms. Julie Barbour

Unit One Schedule

Bring both textbooks and all the writing you have completed so far to class each day. If you have any questions as you are reading and writing, bring these to the next class. Come prepared each day with something to contribute.

All out-of-class writing assignments must be typed and double-spaced in 12 point font, Arial or Times New Roman. Handwritten assignments, except for those completed in class, will not be accepted.

8/27: Go over syllabus and schedule.

8/29: Bring three questions about the syllabus to class. Discuss Place Narrative and Autoethnography assignments. In-class writing.

8/31: Discuss "All Writing is Autobiography" by Donald M. Murray (handout) and Planning section in *A Writer's Reference (AWR*).

9/3: Labor Day recess

9/5: Discuss "Seeing" by Annie Dillard (p. 112).

9/7: Discuss "The Way to Rainy Mountain" by N. Scott Momaday (p. 273). Discuss the use of detail in nonfiction.

9/10: Discuss "Once More to the Lake" by E.B. White (p. 431).

9/12: TBA

9/14: Discuss "I Just Wanna Be Average" by Mike Rose (p. 331). Bring Rough Draft of Personal Essay to class.

9/19: Discuss Writing paragraphs section in *AWR*. Discuss summary and scene. Review section on Word Choice in *AWR.*

9/21: Discuss Drafting and Revising sections in *AWR*. In-class writing time.

9/24: Discuss "Shitty First Drafts" by Anne Lamott and "Calming the Inner Critic and Getting to Work" by Allegra Goodman (handouts). Time for analysis and comparing of notes. Where are you in your narrative, and what have you noticed about yourself as you write and think?

9/26: Peer Review. Bring copy of narrative.

9/28: Writing and Editing Day. Bring laptops, notes, and comments from peers to class.

10/1: Place Narrative and Autoethnography due at the beginning of class in a folder.

Unit One Concurrent Assignments

Place Narrative (90% of Unit One Essay grade)

Write a narrative about a place that has been significant to you, a place that has molded who you are and/or the way you view the world. Choose a place that has deeply affected you and that you know will continue do so, that you will use as a learning experience for yourself, as well as others. Why is it you want to share this place and not another?

Try not to share every detail of the place, as you may get bogged down in details rather than writing about its significance. What are the most important details about this place? Which ones mean the most to the significance of the place, and will in turn mean most to your reader? If some details are fuzzy, just remember to remain true to the place as you fill in the blanks. Your reader is more interested in how true you stay to the sense of place than whether or not you can remember every detail. You are welcome to use photographs as long as they do not take the place of description or are there just to take up space (you must meet length requirements before inserting photographs).

Narrative requirements: 3-4 pages typed and double spaced in 12 point font (Arial, Times New Roman, or comparable) and MLA format (see handbook for examples). ***A copy of this essay must accompany the Autoethnography in a folder with drafts at the beginning of class on October 1.***

Autoethnography (10% of Unit One Essay grade)

For this Assignment, you will conduct an autoethnography—a self-study carefully exploring and describing your own writing processes. Your method will be to record in writing your total writing process as you complete the above writing assignment for class. The complete directions for this assignment are included on the attached handout.

Autoethnography requirements: 1-2 pages typed and double spaced in 12 point font (Arial, Times New Roman, or comparable) and MLA format (see handbook for examples). ***This portion of the assignment must accompany the polished version of the Place Narrative in a folder at the beginning of class on October 1.***

Both portions of the Unit One Essay must be submitted on the due date. One will not be accepted without the other.

ENGL 111 First-Year Composition II (3,0) 3 Credits

Prerequisites: Prerequisite: a grade of *C* or higher in ENGL110.

Instructor(s): Prof. Mary McMyne
LBR 301
X2327
mmcmyne@lssu.edu

Office Hours: 11-12 MW, 12:30-3:30 Tues.

Class Schedule: 9-9:50 am, ENGL 111-01, Arts Center 217
11-12:20 pm, ENGL 111-004, CAS/ET 108

Required Texts:
From Inquiry to Academic Writing: A Text and Reader, Greene/Lidinsky, ISBN-10: 0-312-69232-3
A Writer's Reference, Diana Hacker, 7th Ed., ISBN-10: 0-312-60143-3

Recommended Text: None, but you should plan to complete some assignments on Blackboard.

Course Description:
From the catalog:
First-Year Composition II prepares students for the complex demands of academic literacy and research. These require students to be able to critically observe personal and public knowledge; ask questions of reading and research; formulate hypotheses; design and conduct research projects, both in the library and in the field; and identify further avenues of inquiry.
From me:
To help students develop these abilities, the course also teaches students the basic skills of analysis, interpretation, critical thinking and documentation. Required course work includes completion of an extended research project, for which you will write in several research paper related genres, such as the topic proposal, the research proposal, the annotated bibliography, and of course the research paper itself. Your final assignment will be a 10-page researched critical research essay on a topic of your choice. Ten college-level sources will be required, a number of which will have to be scholarly sources. Throughout the semester, our sequence of assignments will lead to this final project. Reading selections are assigned in order to practice critical reading and thinking skills. While the essays we read may not be directly relevant to your individual project, your ability to comprehend and respond to these readings is integral to learning how to write in the research paper genre.

General Education Objectives: This course fulfills 3 hours of the Communication requirement to analyze, develop and produce rhetorically complex texts.

Course Objectives: By the end of ENGL 111, students should be able to meet the following objectives in rhetorical knowledge; critical thinking, reading, and writing; processes; and knowledge of conventions:

Rhetorical Knowledge

- Establish a clear purpose for writing and develop strategies that sustain that purpose throughout an innovative, comprehensive, research-driven project
- Analyze and respond to the various audiences, constraints, and purposes presented in a range of rhetorical situations
- Combine and apply multiple modes of discourse to present their research and communicate their expertise

Critical Thinking, Reading, and Writing

- Analyze and evaluate the rhetorical strategies and logic of their own thinking and that of others
- Incorporate into the writing process the finding, evaluating, analyzing, and synthesizing of appropriate primary and secondary sources
- Recognize and apply the standards required to develop and present ethical research
- Engage critically with the work of other writers, from peers to published authors, to demonstrate an understanding of writing and reading as dialogues among people who possess differing ideas, beliefs, and values

Processes

- Practice writing as an ongoing process that uses later invention and re-thinking to revise a text
- Employ the collaborative and social aspects of writing processes, i.e., balance relying on formal and informal authority figures with accepting responsibility for doing their part
- Critique their own and others' works
- Work through multiple drafts to create and complete a successful research-driven persuasive text
- Demonstrate flexible strategies for drafting, researching, drafting, revising, editing, and proof-reading

Knowledge of Conventions

- Practice the methods of inquiry and citation expected of university-level writing
- Employ university-level standards of syntax, grammar, punctuation, and spelling

Grading Scale and Policies:

Point Values:

- Topic Proposal…….....100
- Research Proposal…….....……...100
- Annotated Bibliography……..200
- Research Paper: Rough Draft (min. 10 pp.)…..…...150
- Peer Reviewed Revisions…….……..50
- Research Paper: Final Draft (min. 10 pp.)……300
- Daily Work Grade…….....100
  Total……1000

Average	*Course Grade*	*Average*	*Course Grade*
98 – 99.99	A+	78 – 79.99	C+
92 – 97.99	A	70 – 77.99	C
90 – 91.99	A-	60 – 69.99	D
88 – 89.99	B+	59.99 or below	F
82 – 87.99	B		
80 – 81.99	B-		

***NOTE: You must earn a C to pass the class.

Class Policies

1. Attendance and Participation: Our class meetings revolve around daily work including discussion, writing, and group work. I will lecture when necessary, but as little as possible. The bulk of class time will be spent in activities that you must be present to complete. Therefore, your attendance is required and necessary for this class. Your absence not only hurts your own standing in this course, but also takes away from the mutual benefit of our class as we learn together. ***You are allowed a total of 3 unexcused absences.*** Except for medical appointments, please do not make other appointments during class time. You are responsible for obtaining notes or handouts from the days you miss class from Blackboard or other students. Late or missed assignments **will not** be accepted except for legitimate **(pre-approved)** reasons as determined by the instructor. Examples of legitimate reasons might include: death in family, illness, etc. I reserve the right to make the determination as to whether an absence is excused. LSSU-sanctioned travel-related absences (athletics, conference presentations, conference attendance) approved by the Provost will be accommodated. However, students are expected to make arrangements with me before the travel occurs. Failure to do so may result in "F" grades being assigned for the missed work. **If you must miss class, no matter the reason, email or call me as soon as possible to let me know of your absence.** ***For students with more than three unexcused absences, I reserve the right to dock your overall course grade a ½ letter grade for each absence.*** Be warned: The assignment sequences move fast and you must be punctual and on task. Missing even a day will hurt your performance. Your attendance and class participation are interrelated. If you're coming to class and participating fully, you'll have no problems. Start skipping and your grade will go down fast.

2. Timeliness: A student who is chronically late for class communicates disrespect for not only the subject of the class but also the instructor and the other students in the class. If you are regularly more than five minutes late for class, it will be recorded as an absence. (As mentioned above, you are allowed a total of 3 unexcused absences.)

3. Assignments: In order to pass the class, you must turn in and complete **all assignments**. Any assignment that isn't handed in or fails to meet all stated requirements will be deemed incomplete. ***Please keep your syllabus and schedule handy should you need to refer to them during the semester.*** Sometimes, I will ask that you submit assignments on Blackboard. However, email submissions of work *will not* be accepted; please submit only hard copies in a folder the date an essay is due. All assignments must be typed, double spaced, using 12 point font (Arial, Times New Roman, or comparable), and use MLA formatting. See your handbook for examples.

4. Student work: From time to time, I will choose student assignments to discuss in class. Please consider all writing for this course public; do not turn in anything which you would consider private.

5. Late Policy: All hard-copy assignments are due ***at the beginning of class*** on the assigned due date. I will not accept or grade essays left in my mailbox, put under my office door, or sent by email. All hard-copy assignments must be given to me in person, either at the beginning of class or before class during office hours. Online assignments are due by the exact deadline at which time the submissions folder or thread on Blackboard may close. If you expect to be absent on the day an essay is due, please make arrangements in advance to turn in your work beforehand. In-class work, such as presentations, cannot be made up. All major assignments must be submitted for this class; failure to submit all papers will result in an F for the course.

6. Academic Integrity: Students are expected to perform all assigned work themselves unless otherwise noted. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Plagiarism is copying another's work, either exactly or paraphrased, without proper acknowledgment. Plagiarism will be sanctioned accordingly. Please see L.S.S.U.'s Academic Integrity Policy: http://www.lssu.edu/academics/pdfs/Academic%20Integrity%20Policy.pdf. Violations of the Honor Code may result in an F for the course grade.

7. Extra credit: You may be able to earn extra credit for attending literary events on and off campus. Opportunities will be announced if they arise during the semester.

***Ground Rules*:**

- ❖ Keep all assignments that I return to you until the end of the semester. You will use them in preparing the assignments to follow and may be asked to bring them back in.
- ❖ Be on time for class.
- ❖ All cell phones must be turned off before class begins and stored away. Texting is not allowed in class. If you are caught texting, you will be given a warning. The second time you are caught, you will be asked to leave the classroom.
- ❖ Laptops are allowed in class for note-taking only. If you are caught chatting or surfing the Web, you will be given a warning. The second time you are caught, you will be asked to leave the classroom.
- ❖ Respect the other students in the classroom. If you have a statement to make, wait until the speaker is finished, and then take your turn. Otherwise, please do not pass notes or whisper to your neighbor while anyone else, including me, is speaking. Save your personal conversations for non-class time.
- ❖ If it is necessary for you to leave the room briefly, please exit and return quietly.
- ❖ Food is not allowed in the classroom. Drinks are allowed as long as the bottle can be capped so it will not spill. If you happen to make a mess, please clean it up before you leave.

University Policies and Statements: The following university policies and statements are considered to be in effect for this class. Your continued registration in this course means you understand and/or agree to abide by these policies:

- **The Americans with Disabilities Act & Accommodations:** In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities. If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made. Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.
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- **Honor Pledge:** Continued registration in this class after receipt of this syllabus will be considered a pledge to support the Student Honor Code. You will refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism, or lying on take-home assignments, homework, computer programs, lab reports, quizzes, tests, or exams which are Honor Code violations. Furthermore, you understand and accept the potential consequences of punishable behavior, which may include receiving a zero on the assignment, an F for the course overall, and being reported to the University.

TENTATIVE SCHEDULE

Unless otherwise stated, readings are from FIAW: *From Inquiry to Academic Writing.* A few are from *A Writer's Reference,* the research and documentation handbook which will be used in class and at home for your own personal reference. The rest are handouts. Always bring to class the book or handout you were asked to read from the night before, as well as any drafts, notes, etc. that you have for your research project. Please note that this schedule is subject to change. I will let you know if changes arise.

Week 1, August 27
M/T – Introduction to class, *Handouts: introductions to each topical chapter of readings in your book* (Ch. 12, Education; Ch. 13, Media Studies; Ch. 14, Business; Ch. 15, International Relations; Ch. 16, Biology; Ch. 17, Environmental Studies). **HW: Read chapter one and introductions to each of these topical chapters in full to get started thinking about possible topics. Read example research paper by Margaret Talbot, from "Brain Gain" 699-707 (Biology)**
W/Th – *Lecture and discussion: Starting with Inquiry: Habits of Mind of Academic Writers*.
Th/F – Bring your textbook for an in-class analysis of "Brain Gain" (what is the inquiry driving this paper? list of sources, kind of source, how it relates to inquiry). **HW: Read chapter six. Start thinking about your topic proposals. Think about your life. What are some of your most formative experiences? What moments and memories have been most important to you and why? What ideas and issues do you care most about? Think about something that has happened to you, which relates to some idea, which might eventually become a research topic. Try to choose something really important to you, because you will focus intensely on this issue for the rest of your semester!**

Week 2, Sept. 5 (M-T Sept. 3-4 Labor Day Holiday)
W/Th – *Lecture and discussion: From Finding to Evaluating Sources.* **HW: Read Ch. 11.**
Th/F – *Lecture and discussion: Writing a Research Proposal.* **Start researching your issue. Topic proposals will be due on Blackboard next week.**

Week 3, Sept. 10
M/T – Library day: meet in library room XXX. Start work on **Topic Proposal**. *Handout: Topic Proposal Rubric.* **HW: Post your *grammatically correct, clear, well-researched* three sentence topic proposal ((1) rhetorical situation (2) inquiry (3) audience) on Blackboard by Tuesday night at midnight. (100 points)**
W-Th-F – Discuss all topic proposals. Are they binary or real-world questions? Can they actually be researched during a single semester? What kinds of sources would they need to use? Are they specific enough, or do their scopes need to be narrowed? Do they seek and value complexity? **HW: Perform a survey of the literature, so you can make sure your topic is researchable using the library databases. The works cited page for your proposal must contain at least 5 reliable sources. Find these this weekend, print them out or save them to your flash drive, and bring them to our first class next week (either hard copy or on your laptop).**

Week 4, Sept. 17
M/T – Groupwork: competition for bonus points evaluating sources to make sure they are reliable academic research sources. Bring your textbook (this is a practical application of chapter 6). **HW: make sure you have five reliable academic research sources. If you don't, find new ones that fit the criteria we discussed today. Bring your MLA handbook to class next time.**
T/W – *Handout: Introduction to MLA documentation and style.* Workshop: writing MLA citations for your five sources. **HW: Read your handbook pp. 373-398. Finish your works cited page and bring a *hard copy* to class along with your MLA handbook.**
TH/F – Workshop: peer review of works cited page MLA format. **HW: Reread Mary Ronan's research proposal on pages 303-307. Mimic its form, and what we learned this week about in-text citations, write your research proposal. It should have five sections:** introduction, purpose, methods, discussion and implications, and a works cited **page with at least 5 reliable sources. (Mary Ronan's citations are shown separately on the annotated bibliography pp. 300-301.) *Upload your draft to Blackboard by Sunday at midnight.***

Week 5, Sept. 24
M-T-W – *Handout: research proposal rubric.* Class review of model research proposal drafts (format/sections, appropriate research and documentation in-text, realistic methods, discussion and implications). **HW: continue revising and editing your paper using what you learned about the research proposal genre in class. Final research proposals should be polished, clearly written, cleanly formatted, well-researched, and 4 pages + a 1 page works cited page. (100 points)**
Th-F – *No class, sign up for individual conferences to turn in and discuss your research proposal.*

Week 6, Oct. 1
M-T-W – No class, sign up for individual conferences to turn in and discuss your research proposal.
Th/F – Lecture and discussion: Understanding Academic Discourse. **HW: Over the weekend, your assignment is to find two academic sources with differing perspectives on the answer to your research question, read them, and add them to your works cited page (which will soon become your annotated bibliography). Also, read Ch. 3: From Identifying Claims to Analyzing Arguments.**

Week 7, Oct. 8
M-T – Discuss differing-perspective sources, strategies for finding sources with specific information, Ch. 3, argument structure. **HW: Continue researching, as you begin to try to figure out an argument structure that will answer to your research question.**
T-W – Handout: Formulating your argument. Discuss sample arguments and diagram them. Students may attempt to diagram their arguments. Discuss sample diagrammed arguments from the book and last semester. **HW: Continue your research and think about minor claims that, together, will answer your question with some thesis.**
Th-F – Workshop: using sources to build your argument. How do you decide which sources relate to one another, and belong together in your paper? **HW: Read Ch. 5: From Formulating to Developing a Thesis, and continue researching, to try to figure out an argument structure that will answer your research question.**

Week 8, Oct. 15
M-T – Workshop: argument structure clarification and revision. **HW: Take a stab at writing a major claim you can prove with the resources available to you (a working thesis). Pay close attention to language; your thesis will be the most important sentence(s) in your paper. Bring this to class.**
T-W – Thesis/argument structure workshop and revision. **HW: Finish revising your working thesis and argument structure. Once you have a "working thesis," start writing the introduction to your rough draft (150 points) by using the additional sources you recently found to refine and narrow down your introduction from your research proposal to lead to your working thesis, instead of your research question.**
Th-F- Discuss definition of an annotated bibliography, and sample pp. 299-300. *Handout: Annotated bibliography and argument diagram rubric.* **HW: Add all the sources you have found so far to a single Annotated Bibliography as you continue to do research. Post your draft argument structure and annotated bibliography to Blackboard by Sunday night at midnight. Then start reading the top five essays in our reader that are most similar to your topic, so you can get familiar with genre conventions of the academic research essay in the discipline you've chosen.**

Week 9, Oct. 22
M-T – LIBRARY DAY. Continue adding to your annotated bibliography and diagramming your argument. **HW: Read chapter 8. Bring your MLA handbook Wednesday.**
T-W – Workshop annotated bibliographies (MLA, content, argument). **HW: Finish diagramming your argument. Bring your argument diagram to class. Finish adding to your annotated bibliography so that every source you have a works cited entry for supports some claim in your argument, and all claims are supported, as well.**
Th-F – Workshop: Discuss student argument diagrams with evidence that will be used to support each claim. **HW: Finish your annotated bib. and argument diagram. Continue working on the body of your research paper rough draft, which will be due in two weeks. If it feels right, try using each premise of your argument as the title for a body section.**

Week 10, Oct. 29
M –F – No class, sign up for individual conferences to turn in and discuss your annotated bibliography and argument diagram. Handout: Rough Draft rubric. **HW: Read Ch. 7 from Summary to Synthesis, and continue working on the body of your rough draft. If you are going to be busy next week, to get ahead, you can read Ch. 9 and revise the introduction to use one of the introduction strategies it mentions, and also add to the middle of your rough draft. You will need a completed rough draft by the end of next week. (No worries: you've already written the introduction and an outline for the body, and you can always title your concluding section a more refined, shortened version of your thesis.)**

Week 11, Nov. 5
M-T – Lecture and discussion: From Summary to Synthesis. ***HW:*** **Read Ch. 9, Essay Structure, "Harry Potter and the Technology of Magic" (548-562), and continue writing your rough draft.**
W-Th – Lecture and discussion: Intros and Middles. Analysis of beginning of Harry Potter essay. **HW: Finish writing your complete rough draft (min. 10 pages, + works cited page(s) with 10+ sources).**
Th-F – Lecture and discussion: Endings. **Read Ch. 10: From Revising to Editing, and continue writing your rough draft. Upload your rough drafts to Blackboard by Thurs. Nov. 8 at 2pm for TTH class and Fri. Nov. 9 at 1pm for MWF class. (150 pts.)**

Week 12, Nov. 12
M-T - Rough draft grades returned (rubric only). Discuss chapter ten and the peer editing process. Workshop: model papers for revision (organization, clarity of thesis and argument, transitions, topic sentences, overall dissection of structure and organization of paper). **HW: (1) Read back over your returned paper after class, *closely,* for the issues we discussed in class today. Read with a red pen in hand. Mark it up as you go. Then read it again, to see if you can understand why it scored the way it did for each criterion. (After this week, once your paper is all marked up with red ink from your close readings, please see me during office hours to ask any questions you may have. But please wait until after this week – we'll be reviewing all the criteria during this week's workshops – and bring a paper or series of drafts that has/have been seriously marked up, as well as your graded rubric.) (2) Revise your paper as necessary.**
T-W- Workshop: model papers for research and documentation style (in-text citations, use of signal phrases, short and block quote format, clearly citing sources that map to works cited entries, parentheticals, MLA format, and so on). **HW: (1) Read back over the most recent draft of your paper, this time paying attention to research and documentation style issues, in addition to whatever criteria in which you want to increase your score. Read with a red pen in hand and mark it up as you go. (2) Edit your paper as necessary.**
Th-F- Workshop: model paragraphs for surface features (tone, language, clarity, grammar, spelling, mechanics—sentence-level editing). **HW: (1) Read back over the most recent draft of your paper with a red pen in hand, this time thinking about surface features. Hint: for this kind of editing, it often helps for students to read their papers aloud, because you'll stumble upon mistakes your eyes might simply pass over. (2) Finish revising and editing your paper as much as you can based on this week's review—remember to follow the writing process and the composition pyramid: start with organization, then research and documentation style, followed by surface features. Bring a hard (paper) copy of your second draft to class next week. Note: students who do not bring a true second draft Monday will have their daily work grade docked by 50 points.**

Week 13, Nov. 19 (Thanksgiving W-F)
M/T – Peer review of second draft (including w.c. page) for organization, research and documentation style, and surface features. Bring a hard copy. Bring your red pen! And bring your graded rubric, so you can advise your partner what to look for. (To assign peer editors, we will ask for volunteers who are comfortable helping in the specific areas in which you know you need work.). **HW: Over Thanksgiving break, revise your draft based on your feedback.**

Week 14. Nov. 26
M/T – Lecture and workshop: Pathos: Controlling tone and style. Workshop model papers: tone and style. **HW: Edit your most current draft based on your feedback. Please feel free to take it to me for feedback during office hours. Bring a hard copy to class next time.**

T-W – Workshop model papers: tone and style. **HW: Edit your most current draft based on your feedback. Please feel free to take it to me for feedback during office hours. Bring a hard copy to class next time.**
Th-F – Peer reviews mimicking workshop from last time.. **HW: Edit your most current draft to control tone and style. Please feel free to take it to me for feedback during office hours.**

Week 15, Dec. 3
M –F – No class, sign up for individual conferences to turn in and discuss your penultimate drafts and see what grade they would earn and what you need to work on..
The Final Research Paper is the final exam; for each class, the paper is due at the final exam time specified on the University examination schedule.

EVRN 131 Introduction to GIS & GPS 3 Credits

Prerequisites: None

Instructor: Charles McCready
omccready@lssu.edu 635-5451 (work)

Office: Crawford 255
Hours: Wednesday 2:00-4:00

Required Text: Mastering ArcGIS, 5th Ed. by Meribeth Price, McGraw-Hill Science

Course Description and Goals:

This course is designed to acquaint you with the tools and technology needed to access, manipulate, and display geographic information. It is a combined introduction to Geographic Information Systems (GIS), cartography, and Global Positioning Systems (GPS).

This course focuses on the use of ESRI's ArcGIS Desktop suite of software for doing geographic data analysis, and Trimble resource grade GPS receivers for doing field data collection.

Course Objectives: At the conclusion of EVRN131 students will:

1. Be able to understand and describe GIS, GPS.
2. Be familiar with the types of data models used in GIS
3. Be able to describe terms used in GIS and GPS.
4. Be able to analyze real world problems and to synthesize solutions using GIS.

Grading Scale and Policies:

Point Distribution

Class Quizzes	25%
Lab Exercises	25%
Midterm Exam	25%
Final Exam	25%

Grading Scale:

98-100	A+	78-79	C+	0-59	F
92-97	A	70-77	C		
90-91	A-	68-69	C-		
88-89	B+	66-67	D+		
82-87	B	62-65	D		
80-81	B-	60-61	D-		

Course Outline

Labs Lab topics will typically be the week following the lecture.

Week	Dates	Topic	Materials
1	Aug 28, 30	Introduction to basic GIS concepts	Price - Intro
2	Sep 4, 6	Geographic Information "Systems" People, Data, Software, and Hardware	Price - Ch. 1
3	Sep 11, 13	Symbology for Visualizing Geographic Information	Price – Ch. 2
4	Sep 18, 20	Basic Cartographic Concepts	Price – Ch. 3
5	Sep 25, 27	Working with Attribute Data and Tables	Price – Ch. 4
6	Oct 2, 4	Understanding Coordinate Systems and Projections	Price – Ch. 11
7	Oct 9, 11	T – Review R – Midterm Exam	
8	Oct 16, 18	GPS Systems and Data Acquisition	Handouts
9	Oct 23, 25	Spatial Data Editing Concepts and Techniques	Price – Ch. 12
10	Oct 30, Nov 1	Queries – Using Attributes and Location to Select Data	Price – Ch. 5
11	Nov 6, 8	Spatial Joins – Combining data based on location	Price – Ch. 6
12	Nov 13, 15	Geoprocessing – Map Overlays and other Spatial Analysis Tools	Price – Ch. 7
13	Nov 20, 22	Raster Data and Analysis	Price – Ch. 8
14	Nov 27, 29	Data Quality and Metadata	Price – Ch. 15
15	Dec 4, 6	T – Review R – Final Exam Review	
15	**Final Exam**		

Ground Rules:

- Completing assignments on time and keeping up with the class material is important for success in this course and in college. Late assignments will not be accepted except for legitimate pre-approved reasons as determined by the instructor.
- Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
- Use of head phones, cell phones and hats during exams is prohibited.
- Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class for the day and this will count as an absence.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

HONOR PLEDGE

As a student of Lake Superior State University, you have pledged to support the Student Honor Code of the College of Engineering & Technology. You will refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer programs, lab reports, quizzes, tests or exams which are Honor Code violations. Furthermore, you understand and accept the potential consequences of punishable behavior.

EVRN 231 Intermediate GIS 2 Credits

Prerequisites: EVRN 131

Instructor(s): Pariwate Varnakovida (Perry)

E-mail address: pvarnakovida@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
	4.00-5.00	10.00-12.00	3.00-5.00	

Required Texts: Mastering ArcGIS, 4/e by Meribeth Price, McGraw-Hill Science

Course Description and Goals:

Geographic Information Systems (GIS) have been usefully defined in many different ways. Perhaps most generically GIS are tools for the digital storage, representation, and analysis of spatial information. This course will survey the rapidly growing GIS industry, consider many important principles guiding GIS use and development, and provide you with much hands-on experience with applications. My goal is to make it the most challenging, exciting, and rewarding university course you've taken.

To be successful in EVRN 231: Come to class with an open mind and a willingness to learn. Be an active learner: attend class, ask questions, and be conscientious about your assignments. Think about the tasks you perform on the computer and relate those tasks to concepts learned in lecture.

Course Objectives:

After successfully completing this course, you should come away with a clearer understanding of GIS, an understanding of the issues that affect how a GIS is used (and misused), how to review GIS research, how GIS research is written, and an appreciation for how GIS can be used to contribute to a wide variety of disciplines and research interests.

Final grades will be based on two exams, the lab assignments, a final project, writing assignments and class participation.

Grading Scale and Policies:
Point Values:

Exam I	30 %
Exam II	30 %

Lab exercises:

Lab reports and in-class exercises	20%
GIS project, presentation, and poster	20%

Grading Scale:

98-100	A+	70-77	C
92-97	A	68-69	C-
90-91	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

***Ground Rules*:**

28. Completing assignments on time and keeping up with the class material is important for success in this course and in college. Late assignments **will not** be accepted except for legitimate **pre-approved** reasons as determined by the instructor. Examples of legitimate reasons are: severe illness, death in family, etc.
29. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
30. Use of head phones, cell phones and hats during exams is prohibited.
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Tentative Course Outline

Session Number	Week	Day	Date	Topic	Assignment Due
Lecture1	1	M	1/10	Handouts and Introduction	Lab1: GIS Tool or Science
Lecture2	2	M	1/17	Data types	Lab2:GIS data
Lecture3	3	M	1/24	Vector and Raster data models	Lab3: Editing data
Lecture4	4	M	1/31	GIS Operations & Spatial analysis	Lab4: Spatial Queries
Lecture5	5	M	2/07	Raster analysis	Lab5: Vector analysis
Lecture6	6	M	2/14	Reviews	Lab6: Digitizing
Exam 1	7	M	2/21	Remote Sensing and satellite data & ***Exam 1 in lab***	***Exam 1***
Lecture7	9	M	3/07	Remote Sensing and satellite data	Lab7: Raster analysis
Lecture8	10	M	3/14	GPS	Lab8:Geocoding
Lecture9	11	M	3/21	DBMS, practical points Elevation Models	Lab9: Geodatabase
Lecture10	12	M	3/28	Digital Elevation Models and Spatial data interpolation	Lab10: Suitability analysis & proposal
Lecture11	13	M	4/04	Spatial statistic, GIS programming, and web applications	Project
Lecture12	14	M	4/11	Reviews	Project
Exam 2	15	M	4/18	***Exam 2, poster***	Poster presentation

The Project

The project employs GIS to study some problem. You will develop a project proposal, flowchart, and analysis. The project output is a poster and brief (7 minutes, plus questions) presentation to the class.

Group work of 2 is encouraged but not mandatory.

Steps:

- Come up with a problem statement
- Identify and obtain relevant data
- Develop appropriate analysis
- Present results in a clear and concise manner (maps, tables, graphs, text…)

Large and complex problems are not encouraged! The ultimate goal of this (and any) GIS project is to communicate the problem, the methodology, and the results clearly. Grading will reflect how well this goal is accomplished.

EVRN 311 Environmental Law (3, 0) 3 Credits

Prerequisites: Junior Standing, NSCI103 and ECON307 recommended

Instructor(s): David Szlag, Ph.D., PE
Crawford Hall 317
(906) 635-2160
dszlag@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
111:00 am-12:00pm	111:00 am-12:00pm	9:00am-10:00am 1:00 am-12:00pm	111:00 am-12:00pm	

Required Text: Practical Environmental Law. Vietzen, L (2008). Austin, TX: Wolters Kluwer. ISBN-13:978-0-7355-7242-3

A Useful, But Unfriendly Text: Environmental Law Handbook (any edition > 17). Sullivan, T ed. (200x). Rockville, MD: Government Institute.

Course Description: This course expands the junior and senior level student,s study of the fundamental concepts of environmental law and ethics and provides a review of the basic legal systems and research techniques, as well as state and federal environmental statutes and codes. Case studies related to the application of environmental law are used to illustrate ethical dilemmas and approaches for resolving them.

Course Time and Location: 12:30pm-1:50 pm Tuesday and Thursday- Crawford Hall 205

Course Goals: This course will provide the student with the basic tools to research and understand the rapidly growing body of law concerned with interrelationships between human activities and health and the built and natural environment. It addresses economic and ethical rationales for environmental protection; risk assessment and priorities; the attributes of markets and of governments policies; the roles of different branches and levels of government, and of non-governmental organizations; interplay of scientific, economic, social and other factors in development and consequences of environmental law.

Course Objectives: At the conclusion of EVRN311 students will:

37. Demonstrate an understanding of the relationship between laws, regulations and policy;
38. Demonstrate an understanding of the important components of critical environmental and occupational health and safety regulations;
39. Demonstrate an understanding of the regulatory process;
40. Demonstrate an understanding of the constraints in implementing environmental and occupational health and safety regulations;
41. Demonstrate improvement in writing; and

42. Demonstrate an understanding of the role that special interest groups play in influencing environmental regulations.

Grading Scale and Policies:
Point Values:

Grading:

6 written graded assignments, 10 points each	60
6 "check-off" assignments, 5 points each	30
1 homework presentation	10
Legal briefs 2 @ 50 points each	100
Essay Civil Action	100
Oral presentation on second legal brief	50
Exams 2 @ 100 points each	200
Final exam	150
TOTAL POSSIBLE POINTS	700

Percentage Grading Scale:

98-100	A+	70-77	C
92-97	A	68-69	C-
90-91	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

Homework:
During the semester you will submit 12 written assignments. Each assignment will be from the chapter that was the subject of the prior week's lecture. About half of the assignments involve substantive research, summarizing cases, and answering questions, while about half simply require that you answer short answer questions from material in your text or website information. During the semester I will randomly choose six of your assignments for grading on a 10-point scale. The remaining six assignments will be check-offs; they will not be individually graded—if the assignment is submitted in acceptable form, you will get 5 points. In addition, during each class I will select one or two students to give homework presentations. During the homework presentation, you will describe how you did the work, any problems you encountered, etc., and answer questions from your classmates. The presentation should not last longer than 2-5 minutes and is worth up to 20 points.

Legal Briefs (2 @ 50 pts each)
Students will locate and write a brief for two cases related to environmental health and safety issues. The instructor will identify the first case for all students, and students will locate the second cases. For this assignment, students are encouraged to locate cases that are interesting and relevant to their major course of study.

A legal brief is a summary of a case; it is used routinely in legal research, especially to prepare precedent for a trial. As a general rule, a legal brief does not run longer than 1-2 pages. A comprehensive brief will include the following:

1. Name of the case
2. Citation
3. Date the decision was rendered
4. Vote
5. Author of majority opinion
6. Author(s) of concurring opinions (if any)
7. Author(s) of dissenting opinions (if any)
8. Procedural posture of the case
9. Legal topic(s) covered in the case
10. Summary of the facts
11. Question(s) presented by the case (you should phrase each question so that it can be answered with simply "yes" or "no")
12. Summary of the court's reasoning in reaching the answer(s)
13. Summary of significant concurring opinion(s), if any
14. Summary of significant dissenting opinion(s), if any
15. Significance of the case as it applies to environmental health and safety

Your oral presentation of your legal brief should take about 10 minutes. The presentation should include visual elements. You may use the classroom computer/projector to present your graphics and the instructor will assist, if necessary, in operating the equipment.

In-class essays

There are 2 classes devoted to student writing. Students will receive a list of possible essay questions prior to the class session and will write essay responses during class time. The purpose of these essays is to allow students to demonstrate understanding of material covered in class, to ensure that students are staying current with the reading, and to develop students writing skills. Each assignment is worth 50 points.

Final exam

The final exam is worth 150 points and will bring the course into focus. The final may include short answers, essays, multiple choice, and other types of questions and will focus on issues covered throughout the course, including the Woburn case.

***Ground Rules*:**

32. Completing assignments on time and keeping up with the class material is important for success in this course and in college. Late assignments **will not** be accepted except for legitimate **pre-approved** reasons as determined by the instructor. Examples of legitimate reasons are: severe illness, death in family, etc.
33. With the exception of the term paper/project, students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.

34. Use of head phones, cell phones and hats during exams is prohibited.
35. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class for the day and this will count as an absence.

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Tentative Course Outline

WEEK	DATE	DAY	Class Activity	READ	HOMEWORK	What's due?
1		T	Introductions, class expectations; Lec: Source and type of law	CH1	RQ 1:1-5	
				US constitution	1:crossword	
		R	Lec: Legal research	CH1	ASS: 1-4	
				Amend. 1-14		
			Lec: Briefing cases	CH1		
2		MON	**LABOR DAY**			
		TUE	**LABOR DAY**			
		R	Lec: Administrative agencies	CH2	RQ2:1-12; 2: crossword	
					ASS: 2-5	
			Lec: Administrative agencies & Env. Statutes	CH2	Brief 1	HW1
			HW1 presentations			
3		T	Lec: Administrative agencies & Env. Health Statutes	CH2		
		R	Lec: US Courts; HW2 presentations	CH3	RQ3:	HW2
			Lec:State and Local Courts	CH3		Brief 1
4		T	Lec: US Constitution; HW3 presentations	CH4	RQ4:	HW3

		R	Lec: US Executive Agencies	CH4		
			ESSAY 1			
5		T	Lec: Zoning	CH5	RQ5:	HW4
		R	Lec: International Env. Law	CH5		
			Lec: State and Local Health law	MI Public Health Regs		
6		T	Lec: Due diligence; HW5 Presentations	CH6	RQ6:	HW5
		R	Lec: Env Compliance laws	CH6		
			Lec: Env. Inspections	ASTM 1526		Brief 2
7		T	Lec: Env. Assessment; First Brief & HW6 Presentations	CH7	RQ7:	HW6
		R	Lec: EIS; Cont. Brief Presentations	CH7		
			Brief Presentations	Federal Health Regs		
8		T	Lec: CAA; Brief & HW7 Presentations	CH8	RQ8:	HW7

		R	Lec: CAA; Brief Presentations	CH8		
			Lec: CAA; Brief Presentations	CH8		
9		T	Lec: CWA; Brief & HW8 Presentations	CH9	RQ9:	HW8
		R	Lec: CWA; Brief Presentations	CH9		
			Lec: CWA; Brief Presentations	CH9		
10		T	Lec: CERCLA; Brief & HW9 Presentations	CH 10	RQ10:	HW9
		R	**ESSAY 2**			
			Lec: SARA	CH 10		
11		T	Lec: EPCRA	CH 10		
		R	Lec: RCRA; HW10 Presentations	CH 11	RQ11:	HW10
			Lec:RCRA	CH 11		
12		T	Lec: MI Solid Waste	CH 11	RQ12: Civil Action Review Sheet	
		R	Lec: ESA; HW11 Presentations	CH 12		HW11
			Movie Morning	A Civil Action	Review Sheet	
13		T	Movie Morning	A Civil	Essay	

				Action		
		WED	**THANKSGIVING**			
		THU	**THANKSGIVING**			
		FRI	**THANKSGIVING**			
14		T	Lec: ESA; HW12 Presentations	CH 12		HW12: Civil Action Essay
		R	Lec: FIFRA, TSCA	CH 12		
			Lec: OSHA	OSHA, etc. supplement		
15		T	Lec:NIOSH	OSHA, etc. supplement		
		R	Lec: OPA, etc	OSHA, etc. supplement		
				Review		
			Review			
finals		MON	**FINALS**			
		TUE	**FINALS**			
		WED	**FINALS**			
		THU	**FINALS**			
		FRI	**FINALS**			

EVRN 313 Solid and Haz. Waste Mgmt. (3, 0) 3 Cr

Prerequisites: MATH 112 or equivalent

Instructor(s): David Szlag, Ph.D., PE
Crawford Hall 317
(906) 635-2160 or dszlag@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
11:00 am - 12:00 pm	9:30 am- 11:00 am	By Appt.	9:30 am- 11:00 am	11:00am - 12:00pm

Required Texts: Introduction to Environmental Engineering. 4ed. Davis, M. and Cornwell, D.A. **OR** Principles of Environmental Engineering and Science. 2 ed. Davis, M. and Masten, S.J. **AND**

Text 1: Part 115 of the Natural Resources and Environmental Protection Act
1994, PA 451, as Amended
URL www.michigan.gov/deq/

Text 2: Part 111 of the Natural Resources and Environmental Protection Act
1994, PA 451, as Amended
URL www.michigan.gov/deq/

Text 3: RCRA Orientation Manual Revised
EPA ID NUMBER 530-R-02-016
URL http://www.epa.gov/epaoswer/general/orientat/

An iClicker is required

The latter three texts should not be printed out in their entirety…we will only be reading certain sections or referring to specific regulations. Details will be announced in class. These documents are available in Portable Document Format (PDF) and can be viewed with an Adobe Acrobat Reader. To read or print these files, you must have a copy of Adobe Acrobats Reader. The readers are available, free, for Unix, Macintosh, IBM DOS and IBM Windows operating systems from adobe.com.

Course Description: This course provides an introduction to solid and hazardous waste management and site remediation. The major topics covered can be classified into seven categories: (1) the evolution of solid waste management and the controlling statutes and regulations; (2) municipal solid waste management; (3) hazardous waste management; (4) site assessment; (5) remediation; (6) radiation and radioactive materials; and (7) pollution prevention and emerging technology and regulations. *Catalog: In this course we aim to teach the basic concepts of the identification and classification of solid and hazardous wastes, including storage and processing, collection and transportation, resource recovery and recycling, and ultimate disposal or destruction. Topics on radiation, decay, and health effects and sources of hazardous materials will be covered in the context or risk management.*

Course Times and Location: 9:00-10:00 am Monday, Wednesday, and Fridays- CRW 108

Course Goals: The Students shall…

- Be able to describe and articulate landmark events and episodes leading to major environmental laws in the U.S. and Canada.
- Be able to put the major provisions of RCRA and CERCLA in context and explain how the regulatory process applies to solid and hazardous waste management in the U.S. and Canada.
- Be able to describe and make simple calculations regarding the fate and transport of hazardous materials in the environment.
- Understand and describe the risk assessment process and how it relates to solid and hazardous waste management.
- Be able to make simple mass balance calculations regarding the generation and transport of solid waste.
- Be able to make simple mass balance calculations regarding the generation and transport of hazardous waste.
- Be able to describe and develop plans for waste minimization and hazardous waste audits used by corporate managers.
- Be able to describe and make simple calculations regarding common treatment and remediation technologies.

Course Objectives: At the conclusion of EVRN313 students will be able to:

Risk Assessment

- Explain how risk management drives the regulation of solid and hazardous waste management
- Define and differentiate between risk and hazard.
- List the fours steps in risk assessment.
- Identify routes of exposure for release of contaminants to different media.

Solid Waste

- Explain what a solid waste is.
- Know what exemptions and exclusions are.
- State the average mass of solid waste produced per capita per day in the United States in
- 2000.
- What are the trends in solid waste generation in the US and other countries?
- Define the following terms: refuse, solid waste, putrescible waste.
- List the elements of a solid waste management system.
- Explain how policy makers decide how and how often solid waste is to be collected.
- List the methods of collecting recyclable materials.
- List the common materials that can be recycled. Be able to discuss the specific issues pertaining

to each material.
- Discuss how the market for recyclable materials can be improved.
- Define what is meant by reuse of durable goods. Describe several methods of reuse.
- Discuss how education and legislation affect source reduction.
- Define the following terms: combustion, pyrolysis, gasification. What is the difference among these processes?

- List the different types of incinerators. Explain how an incinerator operates.
- List the major public health and environmental issues dealing with incinerators.
- List and discuss the factors pertinent to the selection of a landfill site.
- Describe the methods of constructing a sanitary landfill.
- Explain the purpose of daily cover in a sanitary landfill and state the minimum desirable depth of daily cover… also density and work. (Tim Harrow)
- Define leachate and explain why it occurs.
- What's TCLP and how do we use it?
- Sketch a sanitary landfill that includes proper cover and a leachate collection system.
- Explain the effect of source separation on the heating value of solid waste and on the potential for hazardous air pollution emissions.

Hazardous Waste
- Sketch the chemical structure of a dioxin.
- Explain how dioxins occur or when they are found in nature.
- Sketch the chemical structure of the PCB 2,4'-dichlorobiphenyl.
- Explain the origin of PCBs and explain why dioxin and PCB are hazardous wastes.
- Define hazardous waste.
- List the five ways a waste can be found to be hazardous and briefly explain each.
- State how long generators may store their waste.
- Define the abbreviations CFR, CAA, TSCA, CWA, FIFRA, OSHA, RCRA, HSWA, CERCLA, and SARA.
- Explain what SARA Title III covers
- Explain the procedures for Emergency Release Notification
- Explain emergency response procedures on and off site
- Define the terms *cradle to grave* and *manifest system.*
- Explain what *land ban,* or LDR, means.
- Define the abbreviations TSDF and UST.
- List the four major provisions of CERCLA.
- Explain the major provisions of RCRA.
- List and explain four hazardous waste management techniques.
- List the objectives of a waste audit.
- Differentiate among waste minimization, waste exchange, and recycling.
- List six disposal technologies for hazardous wastes.
- List six treatment technologies and their application.
- Explain how hydraulic conductivity and sorption capacity of soil limit the migration of hazardous wastes.
- Explain what hydrologic features are important in siting a landfill.
- List the minimum EPA requirements for a hazardous waste landfill and sketch a landfill that meets these.
- Explain the difference between deep well injection and land treatment.
- Define the following acronyms: PlC, POHC, and DRE, as they apply to incineration.
- List the most important factors for proper incinerator design and operation.
- List the two types of incinerators most commonly used for destroying hazardous waste.
- Outline the steps in EPA's remediation procedures.
- Be able to sketch and explain pump and treat remediation technologies.
- List technologies that re appropriate for a given contaminant based on Henry's constant, the vapor pressure, the solubility, the octanol water partition coefficient.

- Differentiate between "remediation" and "removal" as they pertain to a CERCLA/SARA cleanup.
- Define NAPLs and DNAPLs and how they distribute themselves in the ground

Radiation

- Explain what an isotope is and how alpha, beta, x-ray and gamma emissions occur
- Define radiation doses and units
- Explain the biological effects of radiation
- Select materials and thicknesses to protect against radiation exposure
- List and describe the types of radioactive wastes
- Describe how each radioactive waste is to be disposed of
- Discuss waste minimization practices for reducing the volume of LLW.

Calculation

- Determine the volume and mass of solid waste from various cities and situations.
- Estimate the volume and area requirements for a landfill.
- Compute the heating value for a compound or waste to be burned (DuLong Equation will be provided).
- Estimate the volumetric flow rate of leachate.
- Explain methane generation and be able to sketch a methane recovery system.
- Determine the feed rate for PAC.
- Determine whether or not a waste is an EPA hazardous waste based on its composition, source, or characteristics.
- Perform a mass balance to identify waste sources or waste minimization opportunities (Waste Audit).
- Perform solubility product calculations to estimate treatment doses for precipitation or the concentration of contaminants that remain in solution.
- Explain how liquid-gas treatment technologies work (air stripping column) works, the critical parameters that govern their design.
- Estimate the hydraulic conductivity of a liner material based on laboratory measurements.
- Estimate the quantity of leachate given the precipitation rate and area.
- Estimate the seepage velocity mid travel time of a contaminant through a soil, given the hydraulic gradient, hydraulic conductivity, porosity, and length of the flow path.
- Determine the activity resulting from the growth of a daughter product from a parent radionuclide/
- Calculate the radiation intensity behind a shielding material

Grading Scale and Policies:
Point Values:

Homework and Quizzes (up to 200 points**):** Homework will generally be assigned each Monday and collected the following Monday. Quizzes will be given to help the students maintain focus and identify problem areas that require clarification by the instructor. Some demonstrations will be further explored as extended homework.

Tests: (100, 150, 150) 400 Points Total

Project: (100 points) A term paper or project will be required. Details will be assigned in week 5

Final Examination: (300 points) The final will consist of two parts: (1) A cumulative essay portion and (2) calculations or derivations.

Grading: There will be a total of approximately 1000 points for the course. Points will be deducted from homework, exams and the final exam for inaccurate or incomplete answers to questions and errors in mathematical calculations.

Percentage Grading Scale:

98-100	A+	70-77	C
92-97	A	68-69	C-
90-91	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

Homework:
During the semester you will submit 12 homework assignments. Each assignment will be from the chapter that was the subject of the prior week's lecture. During the semester I will randomly choose six of your assignments for grading on a 10-point scale. The remaining six assignments will be check-offs; they will not be individually graded—if the assignment is submitted in acceptable form, you will get 5 points.

In addition, during each class I will select one or two students to give homework presentations. During the homework presentation, you will describe how you did the work, any problems you encountered, etc., and answer questions from your classmates. The presentation should not last longer than 2-5 minutes and is worth up to 20 points.

Supplemental reading Assignments:
To access the American Chemical Society Journal database and Archive go to the science section of Subject Guide to LSSU Library Periodical Databases webpage http://www.lssu.edu/library/lib03/guide.html and click on American Chemical Society or from home through the My.Lssu.edu portal My Library tab. Call the reference desk at x2167 or e-mail reference@lssu.edu if you have any questions.

Additional reading assignments will be given in class and should be filled into the matrix below by the student. ROM=RCRA Orientation Manual

	Week of	Topic(s)	Reading	*Homework or Notes*
1	Jan. 9	Course overview Environmental Statutes & Relationships RCRA	 CH 1 CH 1	ROM Executive Summary, Sections VI and I
2	Jan. 16	MSW Characteristics MSW Management and Planning MSW Collection, Transportation, Transfer	CH9 CH9 CH9	
3	Jan. 23	MSW Recycling and Composting	CH9	

		MSW Incineration MSW: (WTE)	CH9 CH9	
4	Jan. 30 Feb. 3	MSW Disposal and Monitoring MSW Disposal and Bioreactor landfills **EXAM 1**	CH9 CH9	
5	Feb. 6	Risk Assessment Process Haz. Waste Identification and characteristics Haz Waste Generators: General Sources	handout CH10 CH10	ROM Section III
6	Feb. 13	Haz Waste Generators & P2 Mass Balances Haz waste Storage and Accumulation Haz waste Treatment	CH10 CH10 CH10	ROM Section III
7	Feb. 20 Feb. 24	Haz waste Treatment Haz Waste Disposal **EXAM 2**	CH10 CH10	ROM Section IV
8	Feb. 27	Spring Break	☺	Be safe!
9	Mar. 5	Introduction to SARA Title III Emergency Planning and Release reporting Emergency Planning and Release reporting	Handouts Handouts Handouts	
10	Mar. 12	Emergency Planning and Release reporting RCRA: UST program Site Assessment and Brownfields	Handouts ASTM standards Handouts	
11	Mar. 19	Fate and transport fundamentals Air Transport Groundwater Transport	CH 2 CH7 CH3	
12	Mar. 26	Remediation Pump and treat Bioremediation	CH10 CH10 CH10	
13	Apr. 2	Thermal technologies Phytoremediation **EXAM 3**	Handouts Handouts	
14	Apr. 9	Radiation Fundamentals Biological effects Radiation Standards and exposure	CH11 CH11 CH11	
15	Apr. 16	Radiation protection Radiation waste COURSE REVIEW	CH11 CH11	
16	Apr. 23	Final Exam Week **FINAL EXAM**		Final Exam TBA

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EVRN 317 Environ.Health Applications (3, 3) 4 Cr

Prerequisites: One semester of chemistry and NSCI 103 or consent of instructor.

Instructor(s): Derek D. Wright, Ph.D.
315 Crawford Hall, x2628,
dwright1@lssu.edu (*don't forget the 1 after my name)

Office Hours: Other times available by appointment

Monday	Tuesday	Wednesday	Thursday	Friday
9-10	1-2	9-10		8-10

Required Text(s): *Environmental Health 4 ed*.; D.W. Moeller; Harvard University Press; ISBN 978-0-674-04740-2

Your textbooks are available at the campus bookstore. New, used, rental and digital are options for purchase depending on title. You may use cash, checks, debit and credit cards as forms of tender, including financial aid checks. In addition to in-store purchase, the bookstore also offers the convenience of ordering your textbooks 24/7 online through My.LSSU (Anchor Access) or at www.lssu.bncollege.com.

Other supplemental reading assignments will be made throughout the course and will be considered required reading.

Recommended Text(s): Environmental Chemistry 6-9th ed. OR Fundamentals of Environmental Chemistry; S.E. Manahan;
and
Standard Methods for the Examination of Water and Waste Water 19th edition or newer

Course Description: A systems approach addressing the factors that contribute to illness, injury, or death, and that affect the health status of individuals and populations. Topics include: environments within buildings, food sanitation, recreation facilities, personal services, and community noise and control. The laboratory emphasizes methods of measuring and evaluating environmental health risks as well as field experience.

Course Objectives: The learning objectives for this course are designed to meet the requirements of both the program and the Environmental Health Accreditation Council.

- Describe the various pathogens and toxins that have public health significance and their routes of exposure
- Explain how the various Federal, State, and Local laws and regulations each contribute to promote environmental health and public welfare.
- Analyze existing regulations, describe how they contribute to public health and welfare, and determine if they are appropriate based on the best available scientific evidence.
- Apply existing environmental health laws and regulations to ensure compliance by the regulated community

Grading Scale and Policies:

Point Values:

Lab Exercises:	100 pts
Exams (4@100 pts each):	400 pts
Final Exam:	200 pts
Project/Assignments:	100 pts
Total:	**800 pts**

Grading Scale:

A: 93-100%
A-: 90-92%
B+: 87-89%
B: 83-86%
B-: 80-83%
C+: 77-79%
C: 73-76%
C-: 70-72%
D+: 67-69%
D: 63-66%
D-: 60-62%
F: 0-59%

***Course Policies*:**

6. Class attendance is the responsibility of the student. Attendance will not be recorded; however, it is strongly recommended that the student attend all of the classes as overall student performance on the exams is usually directly related to the student's participation in the class. Failure to attend more than 2 scheduled laboratory meetings will result in failure of the course.
7. Exams/Presentations: All exams and presentations MUST be taken/given during the scheduled time. There will be no makeup for missed exams without the prior approval of the instructor. If you are suddenly ill, or otherwise unable to attend the exam/presentation during the scheduled time, you are expected to notify me by phone or email prior to the beginning of the class as why you unable to attend. If you do not notify me and/or provide appropriate documentation for a missed exam/presentation, I reserve the right to not permit a make up exam/presentation.
8. Late Assignments: All assignments handed in after the class period in which they are due will be penalized by 5%, with an additional 5% penalty for each additional day it is late. All assignments that are not handed in within 2 weeks of the assigned due date will be assigned a grade of 0 points. Term papers/projects will be assessed a 1 letter grade deduction for each day that they are late (including the first day if not submitted at the beginning of class). Note: failure to submit a research paper/project that meets the minimum requirements will result in a failing grade for the course.
9. All assignments are expected to be neatly typed and stapled – hand written and/or unstapled papers will not be accepted. If you need assistance in locating computing facilities on campus, please contact me and I will assist you.
10. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the University Procedures. Violations may result in an F for the course grade and/or dismissal

from the University. Students will be required to read and comply with all course and university policies related to academic integrity as outlined by the instructor and in the University Catalogue.

11. Use of head phones, cell phones, and any other unapproved electronic devices during exams is prohibited and constitutes a violation of academic integrity (cheating) and may result in an F for the course grade and/or dismissal from the University.
12. Cell phones must be turned off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class.
13. Students are expected to keep copies of all work submitted for a grade in case of computer failure or similar mishaps.
14. Students shall not engage in any inappropriate, dangerous, offensive, or illegal behavior at any time during the course, or in any submitted work. Failure to maintain a safe environment of mutual respect may result in failure of the course.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

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IPASS (Individual Plan for Academic Student Success)

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Tentative Course Outline

Note: this course outline describes the approximate outline for the course is subject to change with or without notice due to illness, university closure, or other necessities.

27-Aug	M	Syllabus, Intro to Env. Health	-
	W	Intro to EH	CH 1
	F	Exposure and Risk Assessment	CH 4
3-Sep	**M**	**Labor Day - No Class**	-
	W	Exposure and Risk Assessment	CH 4
	F	Exposure and Risk Assessment	CH 4
10-Sep	M	Disease Vectors & Vector Control	CH 10
	W	Disease Vectors & Vector Control	CH 10
	F	Disease Vectors & Vector Control	CH 10
17-Sep	M	Recreational Facilities	Supp. Material
	W	Recreational Facilities	Supp. Material
	F	**Exam 1**	-
24-Sep	M	Drinking Water	CH 7
	W	Drinking Water	CH 7
	F	Drinking Water	CH 7
1-Oct	M	On Site Wastewater	CH 8
	W	On Site Wastewater	CH 8
	F	On Site Wastewater	CH 8
8-Oct	**M**	**Exam 2**	-
	W	Food Production	CH 6
	F	Food Service Facilities	CH 6
15-Oct	M	Food Service Facilities	CH 6
	W	Principles of Food Safety and Food Law	CH 6
	F	Principles of Food Safety and Food Law	CH 6
22-Oct	M	Principles of Food Safety and Food Law	CH 6
	W	Foodborne Illness Investigation	CH 6
	F	Foodborne Illness Investigation	CH 6
29-Oct	**M**	**Exam 3**	-
	W	Personal Services	Supp. Material
	F	Personal Services	Supp. Material
5-Nov	M	Indoor Air Quality	CH 5
	W	Indoor Air Quality	CH 5
	F	Indoor Air Quality	CH 5
12-Nov	M	Safe Housing/Workplace	Supp. Material
	W	Safe Housing/Workplace	Supp. Material
	F	Safe Housing/Workplace	Supp. Material
19-Nov	M	Social Care Facilities	Supp. Material
	W	**Thanksgiving Break - No Class**	-
	F	**Thanksgiving Break - No Class**	-
26-Nov	M	Social Care Facilities	Supp. Material
	W	Community Noise Control and Planning	Supp. Material
	F	**Exam 4**	-
3-Dec	M	Project Presentations	-
	W	Project Presentations	-
	F	Project Presentations	-
10-Dec		**Final Exam - Time TBA**	-

EVRN317 Lab Schedule

1 Statistics for Public Health
2 Water Quality sampling/Microbial Analysis
3 *Enterococcus* by q-PCR
4 Swimming Pool/Campground Inspections
5 On site sewage treatment site evaluation
6 Drinking Water Sampling/Lab Certification
7 Drinking Water Analysis by ICP-MS (Lead and copper rule)
8 Food Service Establishment Inspection
9 Microbial reproduction in Food I
10 Microbial reproduction in Food II
11 Microbial Population Modeling
12 Analysis of Gaseous Indoor Air Contaminants
13 Analysis of Particulate Indoor Air Contaminants
14 Same Homes, Risk Assessment & Communication

EVRN/CHEM 395 Junior Seminar (1, 0) 1 Cr.

Prerequisites: Junior standing

Instructor(s): David Szlag, Ph.D., PE
Crawford Hall 317
(906) 635-2160 or dszlag@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
11:00 am - 12:00 pm	9:30 am- 11:00 am	By Appt.	9:30 am- 11:00 am	11:00am - 12:00pm

Course Time and Place: 12:00-12:50 pm, Wednesday, CRW 108

Required Texts: A Short Guide to Writing About Chemistry. Pearson Longman. (2010)
ISBN: 0-205-55060-6

Course Description: This course will prepare the student for searching the scientific literature, scientific writing, and oral presentation of scientific data. Students will be expected to listen to presentations of their peers enrolled in EVRN/CHEM 499 and develop a topic for their senior thesis.

Course Times and Location: 12:00-12:50 am Wednesdays CRW 305

Course Objectives: The Students shall:

- Be able to rapidly compose common business correspondence.
- Be able to conduct scientific literature reviews.
- Prepare accurate and unbiased summaries of technical articles.
- Be able to develop basic project management plans.
- Prepare the proposal for their senior research project.
- Secure a summer job, internship, or obtain a scholarship in their field of study.
- Present their proposal to faculty and peers.

Grading Scale and Policies:
Point Values:

Homework: (100 pts) Written homework will generally be assigned each class and will be submitted electronically via Blackboard. See the course schedule below.

Applications: (300 pts) The student will submit three internship/scholarship/REU applications.

Proposal: **(300 pts)** A complete proposal detailing the students senior project will be submitted and prepared in stages according to the schedule below.

Grading: There will be a total of approximately 700 points for the course. Points will be deducted for sloppiness, grammatical errors, late work, or poor organization.

Percentage Grading Scale:

98-100	A+	70-77	C
92-97	A	68-69	C-
90-91	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

Supplemental reading Assignments:
To access the American Chemical Society Journal database and Archive go to the science section of Subject Guide to LSSU Library Periodical Databases webpage http://www.lssu.edu/library/lib03/guide.html and click on American Chemical Society or from home through the my.lssu.edu portal My Library tab. Call the reference desk at x2167 or e-mail reference@lssu.edu if you have any questions.

Course Schedule

Date	Topic	Assignments	Deliverables due
1/11	Getting started: Brainstorming a topic	Personal Statements, Essays and Topics http://www.doh.state.fl.us/environment/community/internship.html	
1/18	Business correspondence	Cover Letter	Personal Statement / Essay Possible research Topics
1/25	Resumes, Bio sketches and CVs	Resume	Cover Letter and portfolio
2/1	Applications	Application 1	Resume
2/8	How to find an internship	Application 2 and 3	Application 1
2/15	How to write a summary	Article Summary 1	Application 2 and 3
2/22	How to conduct a literature review	Library work	Article Summary 1

2/29		Spring Break	
3/7	What's a bibliographical database	Zotero, Excel, EndNote, or Access	Article summaries 2 and 3
3/14	Writing the Literature review		
3/21	Project management	Make a Gant Chart for your project	Final Topic
3/28	Materials and methods	Individual Conference	Proposal 1st draft and Gant Chart
4/4	Putting it together	Individual Conference	
4/11	Presentations	Attend senior thesis	Final Draft Proposal
4/18	Presentations		

***Ground Rules*:**

40. Completing assignments on time and keeping up with the class material is important for success in this course and in college. Late assignments **will not** be accepted except for legitimate **pre-approved** reasons as determined by the instructor. Examples of legitimate reasons are: severe illness, death in family, etc.
41. With the exception of the term paper/project, students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
42. Use of head phones, cell phones and hats during exams is prohibited.
43. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class for the day and this will count as an absence.

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EVRN 425 Environmental Systems Analysis 4Cr

Prerequisites: CHEM341 and EVRN313.

Instructor: Dr. Andrea Munoz-Hernandez
Crawford Hall, 321
(906)-635-2618
amunozhernandez@lssu.edu

Office Hours:

Tuesday	9:20 am – 11:20 am
Wednesday	1:00 – 2:00 pm
Thursday	9:20 am -11:20 am

Required Text: Mackenzie L. Davis and David A. Cornwell, 2012. Introduction to Environmental Engineering (5th ed), Mc Graw Hill.

Course Description: The basic approach and statistical concerns associated with conducting an environmental analysis, as required for an environmental impact analysis will be integrated with interpretation of data from actual situations. Students will learn how analysis of soil, water, air, plant communities, animal communities and organic tissue analysis can be combined to evaluate the environmental health of a specific site.

Course Objectives:

1. Learn the role an environmental scientist plays in evaluating and solving environmental problems.
2. Understand the principles associated with water resources, water and wastewater treatment, air pollution, and noise pollution.
3. Discuss sustainability associated with water and energy resources in the United States.

Course Evaluation:

Exams	**45%**
1st. exam	(15%)
2nd. Exam	(15%)
Comprehensive	(15%)
Lab	**45%**
Quizzes	**5%**
Participation	**5%**

Notes

1. During the course of this class, we will be having three exams. Each one is equally weighted.
2. As you can see, lab is a very important component of this class; therefore it is heavily weighted within the course evaluation. Each lab assignment has the same value unless otherwise noted.
3. Since this is an upper level class, and there is the expectation that you will be graduating in the near future, you will be expected to organize an individual presentation at the end of the semester. I will give you the guidelines for that presentation several weeks in advanced.

Grading Scale and Policies:

98-100	A+	70-77	C
92-97	A	68-69	C-
90-91	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

Course Policies:

1. The use of any electronic devices (i.e. laptops or cell phones) is prohibited. If your cell phone rings or you are texting in the middle of the class, I will ask you to leave the room. If this behavior persists, points will be deducted from your laboratory assignments.
2. During lab hours, it is expected that the students are not surfing on the web for material that it is not relevant to the class. Additionally, there is an expectation that the students will not be checking their Facebook account or chatting, tweeting, etc.
3. Be on time. Be respectful to your classmates and to me by showing up on time to your class and your labs. It is pretty disrupting for everyone if people start showing up late. Additionally, you might miss important announcements related to homework or field trips made at the beginning of class.
4. Over the course of the semester I will learn all your names and I will know who is participating and who is not. By participation, I mean that you should engage in relevant questions, reasonable debates, and if you believe that you have a good point to share with the rest of the class, please feel free to do so. Participation is highly encouraged. If you avoid participation I may call on you to hear your thoughts on whatever we are discussing at the moment.
5. If I feel that the students are not focusing on the subject, I will reserve the right to have quizzes during class. I will give you at least one day notice, so you are prepared. If you are coming regularly to class, taking notes, and doing your expected work, you will have no problems taking these quizzes.
6. Attendance is important. If you will not be able to attend a class, please let me know in advance. I will not give a summary to you about what was covered in class. You will need to ask classmates for any notes that you are missing.
7. There will be no makeup exams unless you have an extremely good reason (i.e. car accident). The decision to accommodate your needs is based upon my discretion.
8. Late assignments will not be accepted.

University Policies and Statements:

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Tentative Schedule

Week	Date	Topic	Notes
1	8/27/2012	Introduction	
2	9/03/2012	Materials and Energy Balances	Labor Day Recess: Tuesday September 4, 2012
3	9/10/2012	Hydrology	
4	9/17/2012	Groundwater Hydrology	
5	9/24/2012	Water Chemistry	
6	10/01/2012	Water Treatment Overview	Midterm Exam: October 4, 2012
7	10/8/2012	Water Treatment: Mixing and Flocculation	
8	10/15/2012	Water Pollution (Rivers)	
9	10/22/2012	Water Pollution (Lakes)	
10	10/29/2012	Air Pollution	Exam
11	11/5/2012	Air Pollution	
12	11/12/2012	Noise Pollution	
13	11/26/2012	Solid Waste	Thanksgiving Recess begins November 20, 2012 at 10:00 pm
14	11/262012	Sustainability	
15	12/03/2012	Green Engineering	Attending AGU Fall Meeting 2012

Please note that this schedule is an approximation. Changes will be made upon my discretion.

CHEM/EVRN 495 Senior Project (0, 6) 2 Credits

Prerequisites: CHEM395 (also listed as EVRN395), CHEM231 and CHEM225. Dual listed as EVRN495

Instructor(s): All Chemistry and Environmental Faculty
Crawford Hall
(906) 635-2267

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
TBA	TBA	TBA	TBA	TBA

Required Text: NONE

Course Description: This is a practicum course in which students, under the guidance of a faculty mentor, conduct a scholarly project mutually agreed upon by the student and his/her faculty mentor. This course will be required for a degree certified by the American Chemical Society. This course may not be repeated for credit. Prerequisites: CHEM395 (also listed as EVRN395), CHEM231, and CHEM225. Dual listed as EVRN495.

Course Times and Location: TBA

Course Goals: This course will provide the student with the basic tools to research topics and develop laboratory skills:

1. To conduct a scholarly project.
2. To develop laboratory skills.
3. To develop critical thinking skills in the area of scientific research.
4. To manipulate and interpret data.
5. To enhance verbal and communication skills.

Course Objectives: At the conclusion of CHEM/EVRN495, students will have conducted scholarly research under the guidance of a faculty mentor and present the results of this research as part of CHEM/EVRN499 Senior Thesis to the University community.

Grading Scale and Policies:

Point Values:

Each student under the guidance of the faculty mento develops a work plan with objectives. Grade will be assign based on the success of their project and reliability of student.

Percentage Grading Scale:

A – excellent B – good
C- fair D- below average
F-not acceptable

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campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

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CHEM/EVRN 499 (1, 0) Senior Seminar 1 Cr

Prerequisites: **Pre- or co-requisite:** CHEM/EVRN395; recommended CHEM/EVRN495 as pre-or co-requisite

Instructor(s): Dr. R. Marshall Werner, Ph.D
Crawford Hall 327
(906) 635-2281
mwerner@lssu.edu

Location & meeting times: CRW 207 Friday 12:00-12:50pm

Office Hours: (other times by appointment)

Monday	Tuesday	Wednesday	Thursday	Friday
1-2PM	8-10AM	1-2PM	8-10AM	1-2PM

Required Texts: None.

Recommended Texts: Recommended: (any of the following would be an acceptable reference)

The ACS Style Guide. (2006) Anne M. Coghill and Lorrin R. Garson.
ISBN: 978-0841239999

A Short Guide to Writing about Chemistry. (2010) Holly B. Davis, Julian F. Tyson, Jan A. Pechenik.
ISBN: 0-205-55060-6

How to Write and Publish a Scientific Paper. (2011) Robert. A. Day and Barbara Gastel.
ISBN: 978-0313391972

Course Description: Required for seniors majoring in chemistry/environmental science. Students will present the results of their scholarly research. Students who have completed (or are currently enrolled in) CHEM/EVRN495 will be required to give poster and oral presentations to the University community as part of this class.

Course Goals: Students will gain experience in developing three projects related to their scholarly research. For students completing CHEM/EVRN495 these will include a scientific manuscript, a scientific poster, and an oral presentation. For students not completing CHEM/EVRN495, these will include a detailed literature review of a proposed research topic, a poster presentation and oral presentationi of this proposed research topic. Students will gain a better understanding of the scientific method, experimental methods, and the presentation and interpretation of data related to the chemical/environmental sciences.

Course Objectives: At the conclusion of CHEM/EVRN499 students will:

Be able to create a detailed literature review.
Be able to write a scientific manuscript related to scholarly reserch.
Be able to create a poster presentation of scholarly research and defend it to the Faculty and University community.
Be able to create and present an effective oral presentation describing scholarly research to the Faculty and University community.
Be able to utilize modern software in the submission and presentation of material for the course.
Be able to analyze and critique experimental data.
Be able to apply the scientific method.

Grading Scale and Policies:
Point Values:

Grading:

Class:	11- Check-offs (20 pts) ☑	220	points
	1- Detailed Literature Review ®	40	points
	Presentations and Deliverables		
	1- Poster ®	60	points
	1- PowerPoint Presentation ®	80	points
	1- Senior Thesis- Written Report ®	200	points
Total:		**600**	**points**

Grading Scale:

A: 93-100%
A-: 90-92%
B+: 87-89%
B: 83-86%
B-: 80-83%
C+: 77-79%
C: 73-76%
C-: 70-72%
D+: 67-69%
D: 63-66%
D-: 60-62%
F: 0-59%

***Ground Rules*:**

15. **Class attendance is mandatory**. More than 3 absences **FOR ANY REASON** will result in automatic failure of the course. In case of sudden illness or other reasonable excuse, students must notify the instructor.
16. **Presentations:** All presentations MUST be made during the scheduled time and are REQUIRED to pass the class. There will be no makeup for missed presentations without the prior approval of the instructor. If you are suddenly ill, or otherwise unable to attend the presentation during the scheduled time, you are expected to notify me by phone or email prior to the beginning of the presentation as why you

unable to attend. If you do not notify me and/or provide appropriate documentation for a missed presentation, I reserve the right to not permit a make up presentation.

17. **Late Checkoff Assignments (Indicated with a ☑):** All assignments submitted electronically via Blackboard after the class period (12 noon Fridays) in which they are due will be penalized by 20% per week. All assignments that are not handed in within 2 weeks of the assigned due date will be assigned a grade of 0 points.

    Assignments designated with ® in the table below are REQUIRED to pass the class.

18. **Assignments under the "Deliverable" Section:**

    a. All assignments are expected to be neatly typed. You will submit these assignments electronically via the course blackboard site by 12 noon of the day they are due.

    b. The final poster will be printed the week of Nov. 26 and the electronic version is due on Blackboard on Nov. 26 by 12 noon.

    c. In addition to your electronic submission, a hard copy of the 2nd draft of your Thesis will be submitted to your research advisor for editing, by Nov. 16.

    d. Finally, by Dec. 7, you will submit both an electronic and two hard copies of your final thesis to me (the second copy I will give to your advisor).

    If you need assistance in locating computing facilities on campus, please contact me and I will assist you.

19. Students are expected to perform all assigned work themselves. **Any form of cheating or plagiarism will be handled in accordance with the University Procedures. Violations may result in an F for the course grade, or potential expulsion from the University.**
20. Use of head phones, cell phones (and any other electronic devices), and hats during presentations is prohibited.
21. Cell phones must be turned off for all class sessions.
22. Students are expected to keep copies of all work submitted for a grade in case of computer failure or similar mishaps.

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Academic Dishonesty

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Tentative Course Outline

date	Topic	Assignment/ Activity	Deliverable
31-Aug	Introductions; Layout of course	Summary of Research Project	none
7-Sep	Searching the Literature and Bibilographic Databases	Literature Review (20 journal/book ref.)	☑**Research Summary**
14-sep	Writing a CV and Looking for a job	Write first draft of CV Looking for a job/graduate school	®**Annotated Literature Review** (20 min refs. In proper format)
21-Sep	Outlining your project: Scientific Writing 101	6 slide powerpoint presentation	☑**First Draft of CV** ☑**One paragraph summaries of 3 jobs or graduate schools**
28-Sep	**Mini-presentations**	Outline of Thesis – all sections	☑**6 Slide PowerPoint** ☑**Final Draft of CV**
5-Oct	Poster making 101	PowerPoint 1st draft of poster	☑**Outline of Thesis – all sections!!!**
12-Oct	Graphing and Statistics in Excel	Look over example writing	☑**First Draft of Poster**
19-Oct	Discussion on Scientific Writing Examples	Write first draft of Thesis	none
26-Oct	Giving a Scientific Speech 101	Develop 15 min PowerPoint presentation (15-20 slides)	☑**Thesis: 1st draft all sections!!!**
2-Nov	**Set up individual Practice Times w/ Werner (5-nov-8-Nov.)**	PowerPoint Practice – schedule times w/ Werner	☑**PowerPoint 1st draft**
9-Nov	Common writing problems	Discuss common pitfalls	☑**Poster 2nd draft**
16-Nov	Guest Lecture-Nicolas Smith	Guest	☑**Thesis: 2nd draft all sections!!!**

	LSSU Alumnus		
23-Nov	**Thanksgiving**	NO CLASS	NO CLASS
26-Nov	**Poster due for printing**	**Poster due for printing**	**®Poster due for printing**
30-Nov	**Poster Session – 12 noon**	**Poster Session – 12 noon**	**®STAND AND DELIVER**
7-Dec	**Public presentations - 12 noon**	**Public presentations - 12 noon**	**®STAND AND DELIVER** **®Turn in PowerPoint – Final Draft** **®Turn in Thesis - Final Draft**
10-Dec	**Take ACS DUCK exam**	12:30-2:30 Final Exam	CRW207

HLTH 210 Intro to Health Care Concepts & Iss. 3 Cr

Prerequisites: Sophomore standing

Faculty: MaryAnne P. Shannon, PhD, RN, GCNS-BC
Office: CRW 311
Phone: (W) 906.635.2446
Email: mshannon@lssu.edu
Office Hours: half hour before and half hour after class by appointment

Course Location and Time: 12:00noon to 1:20pm on Thursdays and Fridays, in CRW Hall-Room 105

Course Description: This course is an introduction to the health care system with analysis of the issues and trends affection the provision of health care services. Health care topics reviewed will include both local and global issues.

Course Objectives: Upon successful completion of this course, the student will be able to:

1. Describe the goals, structures, and functions of the health care system.
2. Discuss factors influencing change in the health care system.
3. Describe the roles of health care providers within the health care system.
4. Examine issues inherent in the health care delivery system.
5. Contrast the educational programs and roles of health care personnel.
6. Describe the rights and responsibilities of the consumer of health care.
7. Discuss issues of ethical concern for health care providers and workers in public health.
8. Describe effective communication techniques and its effect on quality health care.
9. Identify risk management in health care delivery and environmental systems.
10. Compare the advantages and disadvantages of health care delivery models.
11. Analyze the concept of organizational culture and its impact on health care delivery.

Course Support Materials (Required):

TEXT: Shi, L. & Singh, D. (2010). *Essentials of the US Health Care System (2nd ed.).* MA: Jones and Bartlett. ISBN – 13: 978-0-7637-6380-0 (pbk).

HANDOUTS: As provided in class or on BlackBoard.

Student Responsibilities:

1. Attend class. You are guaranteed to learn the material better.
2. Study hard and demonstrate academic honesty and integrity.
3. If you are in academic difficulty in the course, talk to me early and often. You have at least 3 ways to contact me (office hours, telephone, and e-mail).
4. Please turn off all cell phones and pagers off at the start of class to prevent disturbance to the students around you, and to the class in general.

Grading Criteria: **Possible Points**

Quizzes (3 quizzes @ 10 points each)	30
Final Exam	30
Issues Paper	25
Class Participation Activities:	15

a) BlackBoard posted discussion threads
b) Regular attendance and thoughtful, respectful, in-class participation

Grading Scale and Policies:

Grading Scale:

98-100	A+	70-77	C
92-97	A	68-69	C-
90-91	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

Class Policies:

1. All quizzes and exams must be taken on the assigned date unless **prior** arrangements have been made with the instructor (extenuating circumstances only as determined by the instructor). Failure to make prior arrangements or take the exam within the week of the original date of the exam/quiz will result in a 0 grade on that exam/quiz.

2. Written assignments are expected to be submitted on time unless prior arrangements are made with the instructor (for extenuating circumstances only). All late graded papers will be dropped 10 points for each day the paper is late, starting from the grade assigned to the paper.

3. Discussion Postings relating to Articles on Blackboard: Students will be required to read posted articles and respond to such. In addition, the student must respond to one other student's responses (different students each week) for full marks. Classroom and online discussions are expected to both thoughtful and respectful. See Topic schedule for additional information regarding these.

4. Participation: Students will be graded on the quality and level of their participation in Class with the intent to generate discussion among class members.

Issues Paper:

Each student will submit a paper, 7-10 pages in length not including title page, references or appendices, on a health care concept of choice. Students will submit topics and outlines to the faculty member as noted on the weekly sheet. APA format will be considered in grading and it is expected that each student will utilize the LSSU Writing Center, a resource located in the

basement of the library, to insure the highest level of student success in this assignment.

IPASS/ Student First: If at mid-you're your grades reflect that you are at risk for failing a course, you will be contacted by a representative of IPASS/Student First. The IPASS/Student First Programs are designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits,
and personal accountability.

Accommodation Statement: In compliance with Lake Superior State University policy and equal access laws, disability-related (learning, medical, physical, etc.) accommodations or services
are available. Reasonable and effective accommodations and services will be provided to students
if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines. Students who desire such services must register with the Resource Center for Students with Disabilities (RCSD) to enable the RCSD to verify the disability and determine reasonable academic accommodations. RCSD is located in the Library Room 101. The telephone number is (906) 635-2454. Students must also meet with their professors the first week of class, to discuss their disability related needs.

WK	DATE	TOPIC	ASSIGNMENT
1	R-09-01 F-09-02	-Review of syllabus -Introduction to course -Defining Health	For Friday: Is health care in the US a right or a privilege? (bring in a current news article)
2	R-09-08 F-09-09	✓ Structure of US Health/Medical Care System. Health care delivery models, advantages & disadvantages (cost, access, quality) *Course Objectives 1, 10*	Chapters 1,2
3	R-09-15 F-09-16	✓ Continuation of previous material ✓ Regulations & agencies that impact health care ✓ FDA, HHS, NIH, EPA ✓ HIPAA, OSHA, etc. *Course Objective 2*	Chapters 3, 12 Blackboard Posting
4	R-09-22 F-09-23	✓ Education & roles of health care personnel ✓ Organizational cultures and communication patterns. *Course Objectives 3, 5, 11*	Chapter 4
5	R-09-29 F-09-30	Issues inherent in health care systems ✓ Technology	**Quiz 1** September 29 Oct 1

		Course Objectives 4, 8	Chapter 5
6	R-10-06 F-10-07		
7	R-10-13 F-10-14		
8	R-10-20 F-10-21		
9	R-10-27 F-10-28		
10	R-11-03 F-11-04		
11	R-11-10 F-11-11		
12	R-11-17 F-11-18		
	NO CLASS THIS WEEK- HAPPY AMERICAN THANKSGIVING		
13	R-12-01 F-12-02		
14	FINAL S		Final exam as scheduled

2	FRI (Sept. 2)	✓ Structure of US Health/Medical Care System. Health care delivery models, advantages & disadvantages (cost, access, quality) *Course Objectives 1, 10*	Chapters 1,2
3	(September 15)	✓ Continuation of previous material ✓ Regulations & agencies that impact health care ✓ FDA, HHS, NIH, EPA ✓ HIPAA, OSHA, etc. *Course Objective 2*	Chapters 3, 12 Blackboard Posting
4	4 (September 22)	✓ Education & roles of health care personnel ✓ Organizational cultures and communication patterns. *Course Objectives 3, 5, 11*	Chapter 4
5	5 (September 29)	Issues inherent in health care systems ✓ Technology	**Quiz 1** September 29 Oct 1 Chapter 5

		Course Objectives 4, 8	
6	6 (October 6)	Continuation of issues: ✓ Communication ✓ Ethics ✓ Cost ✓ Access *Course Objectives 4,8*	Chapters 6, 9
7	7 (October 13)	✓ Health Promotion, injury prevention, ✓ Institutional health ✓ Infection control, infectious waste ✓	Video – on reserve See Blackboard for Discussion posting with Articles
8	8 (October 20)	✓ Environmental health management (reporting laws, inspections) ✓ Food protection Public health & inspections in food business	**Quiz 2** See Blackboard for Discussion posting with Articles
9	9 (October 27)	✓ Risk assessment (work, community, family) ✓ Rights of consumers (politics) *Course Objective 7*	Chapters 11, 14 AJN – Energy Production and Public Health
10	10 (November 3) 11 (November 10) 12 (November 17-24) 13 (December 1)	✓ Global & environmental health planning ✓ Impact on global disease ✓ Disaster planning, emergency preparedness *Course Objectives 2,6, 7*	*Week 10* - See Blackboard for Discussion posting with Articles *Week 12* – Nov 24 – **Quiz 3** *Week 13* – **Issues paper** due at beginning of class
	14 (December 8)	✓ Course Synthesis	Issue Presentations and Discussion
	15 (TBA)	Finals week	**Final Exam**

HLTH 328 Multicult. Apprch. to Healthcare 3 Cr

Prerequisites: SOCY101

Instructor(s): Sandi A, King, MSN, RN
Office Number : Crawford #217
Phone Number : (906) 635-2179 (O) or **(906) 440-6651(C)**
E-mail address: sking1@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
1:00pm-5:00pm	Clinicals	9:00am-10:00am	Via text; phone; email	Via text; phone; email

Required Texts:

Giger, J.N., & Davidhizar, R.E. (2012). Transcultural Nursing: Assessment and Intervention (6th ed.). St. Louis, Missouri: Mosby.

Fadiman, A. (1997) The Spirit Catches You and You Fall Down. New York: Farrar, Stratus and Giroux.

Course Description:

This course explores values, beliefs, and practices related to health behaviors in a variety of culturally diverse groups. Methods for fostering culturally sensitive care are explored. Content includes communication, biological and nutritional considerations, and assessment techniques. The student is also introduced to a variety of complimentary and alternative health care practices. This course fulfills the general education cultural diversity outcome. This is an on-line course and may utilize on recorded lectures, blackboard discussions and WIMBA to promote learning.

:

Course Objectives:

At the conclusion of HLTH 328, the student will be able to:

1. Discuss racial and cultural diversity in American society.
   a. Define the concept of culture.
   b. Differentiate the concepts of ethnocentrism and cultural relativity.
   c. Compare and contrast values of selected cultural groups.
   d. Explore the relationship of culture, kinship systems, religious practices, language and customs.
2. Identify cultural influences on health beliefs, practices, attitudes and traditions of ethnic and racial groups.
   a. Discuss ethnic/cultural variations in communication patterns, dietary habits, kinship systems, religious practices and health/illness behaviors.
3. Compare the ethnic identity and cultural health practices of clients.
4. Express an understanding of the need for cultural sensitivity in health care.

a. Demonstrate consideration of individual value systems and cultural life ways to be included in care of a client.
b. Cite values common to the dominant society and contrast them with the values that may be found in other ethnic groups.

5. Apply a conceptual framework of Transcultural Caring to various clients.
a. Describe why the incorporation of cultural parameters is an essential part of the health assessment.
b. Assess client's cultural beliefs and behaviors.
c. Explain how cultural variables and health perceptions may be related to a client's health.

6. Propose change strategies useful in developing culturally relevant programs in a variety of health care settings.
a. Discuss reasons for delayed entry of clients into the health care system.
b. Explore reasons why lay health practitioners may be consulted before professionals.
c. Identify reasons for apparent client non-adherence with health recommendations.

7. Identify how newly acquired knowledge can be used to enhance Transcultural health care research, education and practice.
a. Discuss approaches and techniques the practitioner can use in developing rapport with ethnic groups.
b. Discuss the concept of flexibility as it applies to working with people who have different health beliefs and practices.
c. Explore nursing and other related research that should be relevant and necessary to enhance Transcultural care.

8. Explore the uses of selected complementary and alternative health care practices.
a. Examine the possible interactions of complimentary/alternative practices with mainstream health care
b. Discuss the economic aspects of complimentary/alternative practices.
c. Explore reasons for choosing complimentary/alternative health care.

General Education Objectives:

This course is designed to meet Diversity General Education Outcome. Students will be able to view the world from cultural perspectives other than their own. Specifically, students will be able to:

1. Discuss racial and cultural diversity in American society.
a. Define the concept of culture.
b. Differentiate the concepts of ethnocentrism and cultural relativity.
c. Compare and contrast values of selected cultural groups.
d. Explore the relationship of culture, kinship systems, religious practices, language and customs.

Grading Scale and Policies:

Point Values:

Participation in Discussions (in class & on line)	65
Culture Analysis Paper	100
Complimentary/Alternative Health or Religious/Spiritual Philosophy Presentation	100
8 Quizzes (7 @ 20 pts. ea. & 1 @ 15 pts.)	155
Mid Term Examination	100
Final Examination	100

Total 620 points

Grading Scale:

98-100	A+	72-77	C
92-97	A	70-71	C-
90-91	A-	68-69	D+
88-89	B+	62-67	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

***Course Policies*:**

44. Attending class (both on-campus and on Blackboard), completing assignments on time, and keeping up with the class material is important for success in this course and in college. Generally, late or missed assignments **will not** be accepted except for legitimate **(pre-approved when possible)** reasons as determined by the instructor. Examples of legitimate reasons are: illness, death in family, etc. Class attendance is expected. Student will be responsible for any missed work.

LSSU sanctioned travel related absences (athletics, conference presentations, conference attendance) are approved by the Provost. Instructors are expected to accommodate students in these situations. However, students are expected to make arrangements with the instructor before the travel occurs. Failure to do so may result in "F" grades being assigned for the missed work.

45. Students are expected to perform all assigned work themselves unless otherwise noted. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.

46. Cellular phones will be allowed in class but must be on silent. No electronic devices such
as MP3 players or IPODS will be used in the classroom unless specifically called for by the instructor. If there is a circumstance that requires you to have your cell phone on please
inform the instructor before class and turn off your ringer and put on vibrate. If your cell
phone rings in class you may be asked to leave.

47. For nursing students, a final grade of 72% for the examination portion of the assignments is considered required for passing.

***University Policies and Statements*:**

Online and Blended Course Attendance Policy
Students in online or blended classes are required to log in to the Course Management System (Blackboard, Wimba, TaskStream, etc.) and complete at least one "Academic Related Activity" within the Add/Drop period.

The Americans with Disabilities Act & Accommodations
In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 103, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)
If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

Tentative Course Outline

PLEASE NOTE THAT THESE DATES AND TOPICS ARE SUBJECT TO CHANGE. THE DATES OF EXAMINATIONS MAY CHANGE DUE TO UNFORSEEN CIRCUMSTANCES.
EVERY ATTEMPT WILL BE MADE TO FOLOW THE SCHEDULE AS PROJECTED

Session Number	Week	Day	Date	Topic	Reading Assignment
Lecture	1	M	8/27/12	Introduction	Giger & Davidhizar Chapter 1
Lecture	2	M	9/10/12	Communication & Space	Giger & Davidhizar Chapters 2 & 3
Lecture	3	M	9/17/12	Quiz – Chapters 1,2, 3 Social Organization, Time & Environmental Control	Giger & Davidhizar Chapters 4, 5 & 6
Lecture	4	M	9/24/12	Biological Variations	Giger & Davidhizar Chapter 7
Lecture	5	M	10/1/12	Quiz – Chapters 4,5,6,7 Lecture: The Spirit Catches You and You Fall Down	Fadiman book
Lecture	6	M	10/8/12	Quiz – Spirit Text Lecture: Cultures of Healthcare, Poverty, Disability	Articles

				and Sexual Orientation	
Lecture	7	M	10/15/12	Mid-Term Exam Chapters 1 – 7/Special Topics	
Lecture	8	M	10/22/12	Lecture: Native Americans	Giger & Davidhizar Chapters 10, 11 & 12
Lecture	9	M	10/29/12	Quiz – Native Americans Lecture: African Americans	Giger & Davidhizar Chapters 8 & 20
Lecture	10	M	11/5/12	Quiz – African Americans Lecture: Hispanic Americans	Giger & Davidhizar Chapters 9 & 17
Lecture	11	M	11/12/12	Quiz: Hispanic Americans Lecture: Arab and Indian	Giger & Davidhizar Chapters 14 & 19
Lecture	12	M	11/19/12	Quiz: Arab and Indian Lecture: Asian & Pacific Rim	Giger & Davidhizar Chapters 13,16, 17, 18 & 22
Lecture	13	M	11/26/12	Quiz: Asian & Pacific Rim Student Presentations	Student Presentations available on blackboard
Lecture	14	M	12/3/12	Student Presentations	Student Presentations available on blackboard
Lecture	15	M	12/10/12	Final Exam – cumulative over semester	

Exams/Quizzes

Course exams and quizzes may include multiple choice, true or false and short answer.

Participation

Unit discussions in class, on Blackboard or Wimba (preparation, active participation, leadership, and reflection). Blackboard discussions are due by Sunday 9 pm.

Course Assignments Descriptions

Complimentary/Alternative Health Therapy or Specific Religious/Spiritual Philosophy Presentation

By the **fourth** week of class you are required to select either a complimentary/alternative health therapy or specific religious/spiritual philosophy that you will use to develop a presentation. *You must select a topic that is listed on the topic sheet unless you have another topic specifically approved by the instructor.*

1. By week 5, post a discussion introduction on your presentation topic on the discussion board.
2. Develop a presentation. The presentation must have at least five (5) references. **Required references** include a **book** that explores or describes the assigned topic **and** an article from a professional journal. The remaining references may come from the following current sources (less than 5 years old): Scientific journals, magazine or newspaper articles, books, pamphlets, research manuscripts, and/or conference proceedings (remember the wide variety of materials available at the LSSU library and on-line). Make sure that references are properly cited on the presentation. A complete bibliography of references must be submitted with the presentation. The presentation must be posted on Blackboard 1 week prior to the scheduled review of presentations. Because there may not be the opportunity to present in person, please try to provide opportunities for the viewer to gain a better understanding of the topic by providing content in the presentation and using websites, YouTube clips, etc.

Recommended format for alternative/complimentary therapy presentation:

1. Historical perspective and summary of the therapy.
2. Benefits of the therapy.
3. Limitations of the therapy.
4. Economic implications of the therapy.
5. Available research to support practice.
6. Your personal assessment of the role of this therapy in health care.

Recommended format for religious/spiritual philosophy presentation:

1. General overview of philosophy in relationship to:
   a. Health (physical, spiritual, mental)
   b. Perception of life and death
   c. Individuals responsibility for personal health
   d. "God's" role in healing
2. Demographics related to philosophy (geographic region, primary ethnic groups involved, economics, etc…)
3. Areas or issues that impact the health care system.
4. Your personal assessment of this philosophy in health care.

Complementary/Alternative Health Therapy or
Specific Religious/Spiritual Philosophy
Presentation Topic List

Topics

1. Aroma Therapy
2. Natural Products
3. Deep-Breathing Exercises
4. Guided Imagery
5. Hypnotherapy
6. Progressive Relaxation
7. Yoga
8. Tai Chi
9. Meditation
10. Music Therapy
11. Reflexology
12. Massage
13. Spinal Manipulation
14. Movement Therapies
15. Chinese Herbal Medicine
16. Ayurvedic Medicine
17. Acupressure/Acupuncture
18. Reiki Healing
19. Native American Traditional Healing Practices

20. Muslim Religion
21. Hindu Religion
22. Judaism
23. Jehovah Witness Religion
24. Buddhist Religion
25. Mormonism
26. Bahá'í Faith
27. Taoism

Culture Analysis Paper

As a healthcare professional, our culture of origin shapes how we view our clients.

Being aware of possible bias allows us to strive towards provide culturally competent care.

Students will research their culture of origin and submit an APA formatted 6-8 page paper (not including title page and reference page).

The paper should include at least 3 references with one of the references being a personal communication with an elderly family member or members. Family member(s) should go back at least two generations if possible.

The exploration of the student's culture of origin should be shaped using the 6 elements of culture covered in the text and compared/contrasted to the culture presented in the Fadiman book.

It should also explore your function in the family and how that could influence your role in health care.

Provide a specific example of how your culture of origin could/would influence your care of the Lee family.

A family of origin genogram highlighting social themes (ex history of farming, healthcare, etc), in your family's culture should also be submitted as part of the 6-8 pages.

HUMN 251-001 Humanities I (4,0) 4 Credits

Prerequisites: ENGL110

Instructor: Mrs. Dorothy Case

dcase@lssu.edu

906 635-2114

Office Hours: By Appt. Arts Center 103

Required Texts: Fleming and Marien. Arts & Ideas. 10th edition. Thomson, Wadsworth, 2004.

Recommended Text: other selected history, music history or art history texts

Course Description: The humanities in the life of mankind from prehistory to the Medieval epoch. Emphasizes Greek, Roman and early Christian cultures. Includes consideration of the origins of the arts, language, religion, mythology and philosophy, and ancient Chinese and Indian systems of religious thought.

Course Goals: This course fulfills a portion of LSSU's General Education requirement. LSSU's faculty and administration have decided that in order to receive a degree from this institution, students must develop general skills and knowledge.

General Education Mission Statement

In a diverse and changing world, college graduates must be prepared for a lifetime of learning in a variety of fields. In order to meet this challenge, general education requirements foster the development of general skills and knowledge that are further developed throughout the curriculum. LSSU graduates will be able to:
Analyze, develop, and produce rhetorically complex texts
Analyze, evaluate and explain human aesthetics and its historical development (Humanities Outcome)

Course Objectives: At the conclusion of HUMN251 students will:

Be able to analyze human aesthetics and its historical development.
Be able to evaluate human aesthetics and its historical development.
Be able to explain human aesthetics and its historical development.

Grading Scale and Policies:

There will be 6 exams which are all weighted equally. There will be no formal midterm exam. Similarly, exam 6 over chapters 11 & 12 will be given at the final examination time period.

If you do not take an exam or if you take it in a time period other than the one you are registered in, you will receive 0% for that exam.

Grading Scale:

99-100 %	A+	72-77%	C
92-97%	A	70-71%	C-
90-91%	A-	68-69%	D+
88-89%	B+	62-67%	D
82-87%	B	60-61%	D-
80-81%	B-	0-59%	F
78-79%	C+		

***Ground Rules*:**

48. Completing assignments on time and keeping up with the class material is important for success in this course and in college. Late assignments **will not** be accepted except for legitimate **pre-approved** reasons as determined by the instructor. Examples of legitimate reasons are: severe illness, death in family, etc.
49. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Honor Code Procedures. Violations of the Honor Code may result in an F for the course grade.
50. Use of head phones, cell phones, computers and tablets is prohibited.
51. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class for the day and this will count as an absence.

Attendance is mandatory: Attendance will be taken each class. Unexcused absences of more than two classes may result in the subtraction of final grade points, of 1% per absence. Whenever possible, please notify me by email, in advance.

Extra Credit: Up to 4% of extra credit may be added to the final grade by the submission of extra credit projects. Attendance at an entire cultural event (concert, exhibit etc.) with an accompanying 2-page essay evaluating the event and placing it in its appropriate Humanities context will earn 2 % extra credit. A program or ticket will be required as documentation. Alternately, a 3-page paper on a topic of special interest will earn 2%. The topic must be approved by the instructor in advance. Extra credit work will not be accepted in the last two weeks of class.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

Tentative Course Outline

	Week	Day	Week of	Topic	Reading Assignment	Assignment Due
	1		8-27	Prehistory, Sumer, Egypt	Chapter 1	
	2		9-3	Minoans, Mycenaens, Greece	Chapter 2	
	3		9-10	Greece	Chapter 2	**TEST: CH 1&2**
	4		9-17	Hellenistic Age	Chapter 3	
	5		9-24	Rome	Chapter 4	**TEST: CH 3&4**
	6		10-1	Rome/Early Christianity	Chapter 5	
	7		10-8	Islam, monasticism, feudalism	Chapter 6	**TEST: CH 5&6**
	8		10-15	Gothic, education, Pre-renaissance	Chapter 7 and Chapter 8	
	9		10-22	Pre-renaissance	Chapter 8	**TEST CH 7&8**
	10		10-29	Florentine Renaissance	Chapter 9	
	11		11-5	Roman Renaissance	Chapter 10	
	12		11-12	Roman Renaissance		**TEST CH 9&10**
	13		11-19	Reformation, Northern Renaissance	Chapter 11	
	14		11-26	Venetian Renaissance	Chapter 12	
	15	12-3		Venetian Renaissance		
		12-10		**Final Exam Week**		**TEST CH: 11&12**

INTD 399 Internship in Environ. Health 3 Cr.

Prerequisites:

Instructor(s):

Dr. Derek Wright
Crawford Hall 315
(906) 635-2628
dwright1@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
1-3pm	1-3pm			3-5pm

Required Text: NONE

Course Description: This is a three credits practicum course in which students, under the guidance of a faculty mentor, conduct an approved internship in Environmental Health

Course Times and Location: The student should work for totally 180 hours in an approved internship setting under the supervision of an environmental health specialist

Course Goals: This course will provide the student with applied environmental health experience as appropriate to the settings and meeting EHAC guidelines and learning objectives

Course Objectives: At the conclusion of INTD 399, students will have developed the specified skills on their work plan and be evaluated by the faculty.

Grading Scale and Policies:

Point Values:
The student under the guidance of the instructor develops a work plan with objectives. Grade will be assign based on the success of their project and reliability of student.

Percentage Grading Scale:

A – excellent B – good
C- fair D- below average
F-not acceptable

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on
campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

HONOR PLEDGE

As a student of Lake Superior State University, you have pledged to support the Student Honor Code of the College of Engineering & Technology. You will refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer programs, lab reports, quizzes, tests or exams which are Honor Code violations. Furthermore, you understand and accept the potential consequences of punishable behavior.

MATH 112: Calculus for Bus. & Life Sciences 4 Cr.

Prerequisites: ACT Score of 28 or higher, or a score of 46 or higher on the College Algebra COMPASS exam, or MATH 111 with a grade of C or better.

Instructor(s): Tom Boger
206-A2 Center for Applied Science
906 635 2427
tboger@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
9:00 – 9:50 AM, 1:00 – 1:50 PM		9:00 – 9:50 AM, 1:00 – 1:50 PM		9:00 – 9:50 AM

Required Text(s): Brief Applied Calculus, 5th Edition (Berresford & Rockett)

Your textbooks are available at the campus bookstore. New, used, rental and digital are options for purchase depending on title. You may use cash, checks, debit and credit cards as forms of tender, including financial aid checks. In addition to in-store purchase, the bookstore also offers the convenience of ordering your textbooks 24/7 online through My.LSSU (Anchor Access) or at www.lssu.bncollege.com.

Course Description: Limits, differentiation, applications of the derivative, integration, application of the definite integral, techniques of integration. Calculus of exponential and logarithmic functions, elementary differential equations, functions of several variables.

Course Objectives: At the conclusion of MATH 112, a student will be able to:

a) Describe intuitively the concept of limit, determine when limits exist, use limit notation correctly, find and interpret limits and asymptotes, and use limits to find algebraic rate-of-change formulas
b) Correctly describe various mathematical representations of change, use derivative notation, determine when derivatives exist, interpret derivatives in context, use rules of calculus to compute derivatives, and solve applications using derivatives, including equations of tangent lines, extremes and inflection points, and rates of change, including related rates applications
c) Use appropriate techniques to evaluate indefinite and definite integrals, including integration by substitution and integration by parts, and solve applications using integration
d) Find general and particular solutions to basic differential equations, and model applications from the business and life sciences using differential equation techniques
e) Use calculus concepts to solve applications involving partial derivatives and multiple integrals

General Education Objectives: This course is designed to meet the Mathematics General Education Outcome. Students will be able to analyze situations symbolically and quantitatively in order to make decisions and solve problems. Specifically, students will be able to:

- Construct mathematical models of real-world applications, and use appropriate techniques from calculus to analyze those mathematical models

Grading Scale and Policies:

Grades: Grades will be assigned on the basis of total points earned this semester. There will be four hourly tests, worth 100 points each, and a comprehensive final exam, worth an additional 200 points. Final grades will be based on total points earned, in accordance with the following schedule:

545 - 600 Points: A	425 - 474 Points: C
540 - 544 Points: A-	420 - 424 Points: C-
535 - 539 Points: B+	415 - 419 Points: D+
485 - 534 Points: B	365 - 414 Points: D
480 - 484 Points: B-	360 - 364 Points: D-
475 - 479 Points: C+	0 - 359 Points: F

Absences and Make-ups:

- Students are expected to be in class each day at the time the class begins. If you miss class, or are late, it is up to you to track down anything you may have missed.
- Tests are to be taken at the scheduled times.
- In the event of a university-approved absence or a conflict with some event in your personal life, you should provide written notification (NOT e-mail or voice mail) at least one week in advance. If I approve, we will make arrangements for a make-up at that time.
- If you miss an exam due to an unexpected illness or family emergency, you should notify me as soon as possible (e-mail or telephone messages are permissible) of the reason for your absence; we can then discuss whether a make-up opportunity will be provided.
- If you simply miss an exam without providing proper notification, no make-up will be allowed - you will receive a grade of 0 for the exam.

Classroom Expectations:

- Class begins at 8:00 AM each morning, and runs until 8:50 AM. I expect you to be in class on time; late arrival is disruptive to both your instructor and your classmates. Refilling your backpack at 8:45 is equally disruptive; please wait until class has ended.
- There is no need for you to have any electronic devices out in this class other than your calculator. Please make sure your cell phone is muted. Don't think you're fooling anyone by hiding your cell phone below your desk so you can send and receive text messages.
- Show respect for your classmates at all times.

University and Departmental Policies:

Please see the accompanying Class Policies handout from the School of Mathematics and Computer Science.

Additional policies, including those below, are posted on the Provost's website: www.lssu.edu/provost/forms.

- The Americans with Disabilities Act & Accommodations
- IPASS (Individual Plan for Academic Student Success)

Tentative Course Outline

	Monday	Tuesday	Wednesday	Thursday	Friday
08/27 - 08/31	**Overview; 2.1**	**2.1**		**2.2**	**2.2**
09/03 - 09/07	**Labor Day Break**			**2.3**	**2.4**
09/10 - 09/14	**2.4**	**2.5**		**2.6**	**2.6**
09/17 - 09/21	**2.7**	**Review**		**Test #1**	**3.1**
09/24 -	**3.2**	**3.3**		**3.4**	**3.4**

09/28					
10/01 - 10/05	**3.6**	**3.6**		**3.6**	**4.1**
10/08 - 10/12	**4.2**	**4.3**		**4.3**	**Review**
10/15 - 10/19	**Test #2**	**5.1**		**5.1**	**5.2**
10/22 - 10/26	**5.2**	**5.3**		**5.3**	**5.4**
10/29 - 11/02	**5.4**	**5.6**		**5.6**	**Review**
11/05 - 11/09	**Test #3**	**6.1**		**6.1**	**6.3**
11/12 - 11/16	**6.5**	**6.5**		**7.1**	**7.2**
11/19 - 11/23	**7.2**	**7.3**	**Thanksgiving Break**		
11/26 - 11/30	**7.5**	**7.5**		**7.7**	**7.7**
12/03 - 12/07	**Review**	**Test #4**		**Review**	**Review**
12/10 - 12/14	**Final Exam 7:30 AM**				

To the extent possible, we will cover the specified sections on the specified dates. If for some reason we do not hold strictly to this schedule, exams will still be held on the dates shown on this outline.

MATH151 Calculus I (4,0) 4 Credits

Prerequisites: High school mathematics that includes two years of algebra, one year of plane geometry and one-half year of trigonometry and equivalent/satisfactory score on ACT or Placement Exam, or MATH 140 with a grade of C or better or MATH 111 and MATH 131 with grades of C or better.

Instructor: Kimberly Muller
CASET Hall, Room 206-F
906-635-2170
kmuller@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
11:00-11:55 am	9:00-9:55 am		9:00-9:55 am 11:00-11:55 am	9:00-9:55 am

Required Texts: Essential Calculus: Early Transcendentals; Stewart. (ISBN: 0495109576)

Your textbooks are available at the campus bookstore. New, used, rental and digital are options for purchase depending on title. You may use cash, checks, debit and credit cards as forms of tender, including financial aid checks. In addition to in-store purchase, the bookstore also offers the convenience of ordering your textbooks 24/7 online through My.LSSU (Anchor Access) or at www.lssu.bncollege.com.

Course Description: Limits, continuity and inverse functions. Logarithmic and exponential functions. Differentiation and applications of the derivative. L'Hopital's rule. Inverse trigonometric functions. Integration and the definite integral.

Course Goals: Provide students with an introduction to differential and integral calculus and prepare students to go on to Calculus II.

Course Objectives: At the conclusion of MATH151 students will be able to:

1. Describe the concept of limit intuitively; find limits graphically, algebraically, analytically, and using L'Hôpital's rule; apply limits to the concepts of continuity, derivative, and definite integrals and then interpret the results.
2. Describe intuitively the concept of continuity and state rigorously the definition using limits; identify intervals of continuity and points of discontinuity in particular functions; and state, interpret, and apply the Intermediate Value Theorem.
3. Describe intuitively the concept of derivative and state rigorously the definition using limits; find and interpret derivatives using the definition, the various rules available, implicit differentiation and related rates; apply to the analysis of functions (increasing, decreasing, optima); and state, interpret, and apply the Mean Value Theorem.
4. Use area and average value to describe intuitively the concept of integration; define integration rigorously using limits; find anti-derivatives using integration rules and substitution; state and interpret the Fundamental Theorem of Calculus and use this theorem to evaluate definite integrals; and apply integration techniques to problems involving rates.
5. Solve application problems by drawing sketches, where applicable, and using English statements to name variables, find equations, define parameters, and create models; then

apply algebra, trigonometry, and calculus methods to solve for the unknown values, and report the solution.

General Education Objectives:
This course is designed to meet the Mathematics General Education Outcome. Students will be able to analyze situations symbolically and quantitatively in order to make decisions and solve problems. Specifically, students will be able to:

Solve problems presented in the context of real world situations with emphasis on model creation, prediction and interpretation. This will be done using multiple perspectives (formulas, tables, graphs, and words) and will include fitting an appropriate curve to a scatter plot.

Grading Scale and Policies:
Percentages:

Quizzes	10%
Exams (5 worth 14% each)	70%
Final Exam	20%
	Total 100%

You will be graded on correct methodology. This means that if you provide an answer but show no work or your work is incorrect, you will not receive credit. You must follow directions. Your solutions must be written in a connected, step-by-step logical fashion and all variables should be clearly defined. If your solution is not written clearly, you will not receive full credit. In many cases, setting up the correct mathematical formula and using proper mathematical procedures and notation while solving a problem will be just as important as computing a numeric answer.

Grading Scale:

99-100	A+	73-77	C
93-98	A	70-72	C-
90-92	A-	68-69	D+
88-89	B+	60-67	D
83-87	B	0-59	F
80-82	B-		
78-79	C+		

***Ground Rules*:**
1. Calculator: You will need a graphing calculator. The TI-83/84 Plus is the recommended calculator for this course. This is the one your instructor will be using, and your instructor may not be able to provide assistance with other models. (See *School of Mathematics and Computer Science Policy Sheet*.) All other electronic devices, including computers, PDAs and cell phones, must be turned off for all class lecture sessions.
2. Purpose of Lecture: Lectures are an opportunity for students to ask questions and seek clarification on material. This implies student preparation has been accomplished prior to class. Lecture is also the opportunity for the instructor to coordinate coverage of the material and present material that is historically or potentially difficult. It does not negate student preparation or study. (See the Time Utilization section of the *School of Mathematics and Computer Science Policy Sheet*.)

3. Attendance Policy: Attendance is required. If you miss a class, or are late, you are still responsible for class notes and assignments.

4. Make-up Policy: Each exam should be taken at the designated time. An exam may be taken prior to the scheduled date provided that the student provides a written request at least one week prior to the date in which he or she chooses to take a test. In the event of a schedule conflict with a university function, dental/physician's appointment, wedding, etc., the student must take the test early. In all other cases, if a test is missed, the student must contact the instructor within 48 hours of the scheduled test time. The student may leave a message by voice-mail or e-mail if necessary. It is the sole discretion of the instructor to give (or not) make-up exams if an absence is unexcused. Hospitalization of the student, death of a close relative and orders of a doctor would be considered valid excuses. Most other things would not. Make-up exams and exams which are taken early may or may not be the same exam as the in-class exam. In most cases make-up quizzes will not be given. Instead, at least two quiz grades will be dropped.

5. Academic Integrity: Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the Academic Integrity Procedures. Violations of the *University Academic Integrity Policy* may result in an F for the course grade.

6. Testing: Use of head phones, cell phones, electronic devices and hats during exams is prohibited.

University Policies and Statements:

Policies, including those below, are posted on the Provost's website: www.lssu.edu/provost/forms.

- Online and Blended Course Attendance Policy
- The Americans with Disabilities Act & Accommodations
- IPASS (Individual Plan for Academic Student Success)

Calendar (Extremely Tentative): The course outline below is a projection of the general structure and content of the course. It is subject to change without prior notice.

MATH 151.001 FALL 2012				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8/27 Syllabus, Review	8/28 Review, Section 1.1	8/29	8/30 Sections 1.1, 1.2	8/31 Section 1.2
9/3 Holiday	9/4 Holiday	9/5	9/6 Section 1.3	9/7 Section 1.4
9/10 Section 1.4	9/11 Section 1.5	9/12	9/13 Section 1.6	9/14 Review
9/17 Test 1	9/18 Section 2.1	9/19	9/20 Sections 2.1, 2.2	9/21 Section 2.2
9/24 Section 2.3	9/25 Section 2.4	9/26	9/27 Section 2.5	9/28 Section 2.5
10/1 Section 2.6	10/2 Section 2.7	10/3	10/4 Section 2.8	10/5 Review
10/8 Test 2	10/9 Section 3.1	10/10	10/11 Section 3.2	10/12 Section 3.3
10/15 Section 3.4	10/16 Section 3.5	10/17	10/18 Section 3.5	10/19 Section 3.6
10/22 Section 3.7	10/23 Section 3.7	10/24	10/25 Review	10/26 Test 3
10/29 Section 4.1	10/30 Section 4.1	10/31	11/1 Section 4.2	11/2 Section 4.3
11/5 Section 4.4	11/6 Section 4.5	11/7	11/8 Section 4.5	11/9 Section 4.6
11/12 Review	11/13 Test 4	11/14	11/15 Section 4.7	11/16 Section 4.7
11/19 Section 5.1	11/20 Section 5.2	11/21 Holiday	11/22 Holiday	11/23 Holiday
11/26 Section 5.3	11/27 Section 5.4	11/28	11/29 Review	11/30 Test 5
12/3 Section 5.5	12/4 Section 5.5 Assessment	12/5	12/6 Review	12/7 Review
12/10 Final Exam 7:30-9:30	12/11	12/12	12/13	12/14

Homework:
The homework exercises for each section are below. You should spend a lot of your math study time doing homework. If you are struggling with your homework seek help from your instructor or the tutors in the Learning Center.

Section 1.1: 1, 3, 5, 17, 19, 33, 37, 39
Section 1.2: 11, 17, 35, 37, 39, 45, 47
Section 1.3: 1, 3, 5, 7, 9, 13, 15, 17, 21
Section 1.4: 1, 10, 11, 15, 17, 21, 23, 27, 29, 33, 35, 37, 43, 45
Section 1.5: 3, 5, 11, 13, 15, 17, 19, 21, 27, 33, 35, 37, 41
Section 1.6: 1, 7, 9, 13, 15, 19, 21, 23, 25, 29, 31, 32, 33

Section 2.1: 1, 5, 7, 9, 11, 15, 17, 19, 39
Section 2.2: 1, 3, 5, 9, 17, 21, 27, 29, 33
Section 2.3: 1-31 odd, 35, 41, 43, 45, 51
Section 2.4: 1-13 odd, 17, 21, 23, 29, 33, 37
Section 2.5: 3, 5, 9, 13, 15, 21, 25, 29, 31, 35, 39, 43, 57
Section 2.6: 1, 3, 7, 11, 17, 19, 23
Section 2.7: 1, 3, 7, 9, 11, 13, 23, 29, 35
Section 2.8: 1, 3, 17, 19, 21, 23

Section 3.1: 5, 7, 9, 13, 15, 21, 23, 25, 27, 29
Section 3.2: 1, 3, 5, 7, 15, 17, 21, 25, 31, 33, 43, 45, 47, 49, 51, 53, 61, 63, 69, 73
Section 3.3: 1-13 odd, 17-25 odd, 29-33 odd, 37, 41, 45, 49, 53
Section 3.4: 1, 3, 9, 11, 13, 17
Section 3.5: 1, 3, 5, 9, 17, 19, 21, 23, 25, 27
Section 3.6: 1, 3, 5, 17, 27-39 odd
Section 3.7: 1, 5, 9, 13, 17, 21, 25, 29, 31, 33

Section 4.1: 1, 3, 5, 9, 11, 15-37 odd, 41, 47
Section 4.2: 1-17 odd
Section 4.3: 1-9 odd, 13, 17, 23, 25, 29, 33, 35
Section 4.4: 1, 4, 9, 13, 23, 27, 37, 39
Section 4.5: 1, 7, 13, 15, 19, 21, 45
Section 4.6: 1, 5, 7, 11
Section 4.7: 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45

Section 5.1: 1, 3, 5, 7, 9, 13
Section 5.2: 1, 5, 9, 13, 17, 25, 31, 33
Section 5.3: 1-27 odd
Section 5.4: 3, 5, 7, 8, 9, 11, 15, 17, 19
Section 5.5: 1-13 odd, 17, 23, 27, 31, 35, 39, 43, 49

MATH 207: Princ. of Statistical Methods (3,0) 3 Cr.

Prerequisites: MATH086 or equivalent/satisfactory score on ACT or Placement Exam. This course will not count toward a major in mathematics.

Instructor(s): Christopher Smith
CAS 206 I
635-2162
csmith16@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
4:00 – 5:00 PM	9:00 – 9:50 AM 1:00 – 2:00 PM	10:00 – 10:50 AM 4:00 – 5:00 PM	9:00 – 9:50 AM 1:00 – 2:00 PM	

Required Text(s): Discovering Statistics – Brief Version, by Larose

Your textbooks are available at the campus bookstore. New, used, rental and digital are options for purchase depending on title. You may use cash, checks, debit and credit cards as forms of tender, including financial aid checks. In addition to in-store purchase, the bookstore also offers the convenience of ordering your textbooks 24/7 online through My.LSSU (Anchor Access) or at www.lssu.bncollege.com.

Course Description: Descriptive statistics, probability distributions (including normal, binomial and chi-square), techniques of statistical inference including tests of hypotheses and selected nonparametric tests. (This course is a survey of elementary statistical concepts.)

Course Objectives: At the conclusion of MATH 207, a student will be able to:

1. Produce and interpret statistical charts and graphs including frequency distribution, stem and leaf plots, histograms, and scatter plots;
2. Compute the mean, median, standard deviation, and percentiles of a data set;
3. Produce and interpret a discrete probability distribution and then find its mean and standard deviation;
4. Compute probabilities using the basic probability rules, combinations and permutations, and the binomial function;
5. Compute probabilities and find percentiles for continuous probability distributions such as normal, student-T, and chi-squared distributions;
6. Produce and draw conclusions from confidence intervals on populations means, proportions, and differences in means or proportions;
7. Test hypotheses on population means, proportions, and differences in means or proportions and use the results in decision making;
8. Find and interpret the correlation coefficient, and coefficient of determination, and the linear regression coefficients for paired data sets and use these values to make predictions;
9. Use categorical tests of Independence and Goodness-of-Fit.

General Education Objective:

This course is designed to meet the Mathematics General Education Outcome: students will be able to analyze situations symbolically and quantitatively in order to make decisions and solve problems. Specifically, students will be able to solve problems by examining data, organizing, summarizing, presenting, analyzing, interpreting, and drawing conclusions based upon the data.

Grading Scale and Policies:

Final grades will be based on the total points earned on several course activities, including:

Point Values:

Class attendance and participation worth 50 points

Three exams as per the tentative schedule each worth 100 points

A final exam, scheduled for Wednesday, December 12 at 7:30 AM, worth 200 points

Chapter assignments (on time) and quizzes worth 100 points

Grading Scale:

Actual grade assignments will be based on the following percentage scale:

92-100: A	72-77: C
90-91: A-	70-71: C-
88-89: B+	68-69: D+
82-87: B	62-67: D
80-81: B-	60-61: D-
78-79: C+	0-59: F

***Course Policies*:**

- Students are expected to be in class each day at the time the class begins. If you miss class, or are late, it is up to you to track down anything you may have missed.
- Tests are to be taken at the scheduled times.
- In the event of a university-approved absence or a conflict with some event in your personal life, you should provide written notification (NOT e-mail or voice mail) at least one week in advance. If I approve, we will make arrangements for a make-up at that time.
- If you miss an exam due to an unexpected illness or family emergency, you should notify me as soon as possible (e-mail or telephone messages are permissible) of the reason for your absence; we can then discuss whether a make-up opportunity will be provided.
- If you simply miss an exam without providing proper notification, no make-up will be allowed - you will receive a grade of 0 for the exam.

- Assignments must completed and submitted by the deadline to receive points. If you struggle with the assignments, try other problems from the text. The assignments are provided to build skills that will be spot checked with quizzes and tested on examinations.

- Quizzes will be drawn from the material on the assignments. As a general rule, if you miss a quiz, you will receive a grade of zero for that quiz. I won't, in general, allow make-ups on quizzes. You can, however, contact me in the event of extenuating circumstances.

University Policies and Statements:

Policies, including those below, are posted on the Provost's website: www.lssu.edu/provost/forms.

- Online and Blended Course Attendance Policy
- The Americans with Disabilities Act & Accommodations
- IPASS (Individual Plan for Academic Student Success)

Please see the accompanying Class Policies handout from the School of Mathematics and Computer Science.

Tentative Course Outline

	Reading	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Ch. 1, Sec. 2.1, 2.2	Assignment 1 given in class				
Week 2	Sec. 3.1, 3.2	Labor Day	Labor Day Break	Assignment 1 due at start of class Assignment 2 given		
Week 3	Sec. 3.2, 3.4, 3.5			Assignment 2 due Assignment 3 given		
Week 4	Sec. 4.2, 4.3	Assignment 3 due Assignment 4 given				Assignment 4 due Review
Week 5	Sec. 5.1, 5.2	Test Chap. 1 - 4		Assignment 5 given		
Week 6	Sec. 5.3, 5.4, 6.1			Assignment 5 due Assignment 6 given		Assignment 6 due Assignment 7 given
Week 7	Sec. 6.2, 6.3			Assignment 7 due Assignment 8 given		
Week 8	Sec. 6.3, 6.5, 8.1, 8.2			Assignment 8 due Assignment 9 given		
Week 9	Sec. 8.2, 8.3					Assignment 9 due Review
Week 10	Sec. 9.1, 9.5	Test Chap. 5, 6, 8		Assignment 10 given		
Week 11	Sec. 9.4, 10.1, 10.2	Assignment 10 due Assignment 11 given				Assignment 11 due Assignment 12 given
Week 12	Sec. 10.2, 10.3, 11.1			Assignment 12 due Assignment 13 given		
Week 13	Sec. 11.2	Assignment 13 due Assignment 14 given		Thanksgiving Break	Thanksgiving Day	Thanksgiving Break
Week 14	Sec. 11.2					Assignment 14 due Review
Week 15	All previously covered	Test Chap. 9, 10, 11		Review for Final		Review for Final
Exams				Final Exam 7:30 AM Dec. 12		

NSCI 103 (3,0) Environmental Science 3 Cr.

Prerequisites: None

Instructor(s): Derek D. Wright, Ph.D.
315 Crawford Hall, x2628,
dwright1@lssu.edu (*don't forget the 1 after my name)

Office Hours: (other times by appointment)

Monday	Tuesday	Wednesday	Thursday	Friday
9-10	1-2	9-10		8-10

Required Texts: **Environmental Science, Towards a Sustainable Future, 11th edition.** By Wright and Boorse. Prentice-Hall Inc.

Your textbooks are available at the campus bookstore. New, used, rental and digital are options for purchase depending on title. You may use cash, checks, debit and credit cards as forms of tender, including financial aid checks. In addition to in-store purchase, the bookstore also offers the convenience of ordering your textbooks 24/7 online through My.LSSU (Anchor Access) or at www.lssu.bncollege.com.

Recommended Text: An online study guide is available from the publisher and may be useful

Course Description: An introduction to environmental concepts and a brief survey of environmental issues facing society. Emphasis is placed on solutions and the responsibility of the individual towards these solutions.

Course Goals: Students will gain a comprehensive overview of environmental concepts and environmental issues facing society. Particular emphasis is placed on issues such as climate change and energy policy, such that students can be informed participants in the public debate on these issues.

Course Objectives: At the conclusion of NSCI 103 students will:

Be able to describe the role of science in informing environmental policy
Be able to describe the characteristics of a sustainable society
Be able to describe the characteristics of various components of the global environment and their interactions with humans and each other
Be able to recognize the importance of the environmental issues facing modern society

General Education Objectives:
This course is designed to meet the Natural Science General Education Outcome. Upon successful completion of this course, the student will be able to:

Incorporate empirical evidence in the analysis of the causes and consequences of natural phenomena

Grading Scale and Policies:

Point Values:

Class:	**3 out of 4** - one hr. exams (100 pts)	300 points
	1 - final exam	200 points
	1- Classroom Response (I Clicker)	50 points
	Homework	50 points
Total:		**600 points**

I clickers: I-clickers (classroom response system) will be graded as follows: for each response, 2 points will be awarded. For each correct response, an additional point will be awarded. For the semester, students who receive 80% of the possible points will receive 50/50 points toward their final grade. The purpose of this is to allow you to miss a few days of class over the course of the semester, without penalty. As a result, there will be no makeup for missed I-clicker questions due to illness, forgetting your I clicker, or any other reason. Students with university excused absences (ex.traveling athletes, student govt. members etc) will not have the points from the missed days counted toward their total points achievable for the semester. Students with university excused absences must notify the instructor prior to the date(s) to be missed, **AND** must submit a list of days absent and reason for the absence at the end of the semester, prior to the final exam, to receive this adjustment.

Grading Scale:

A: 93-100%
A-: 90-92%
B+: 87-89%
B: 83-86%
B-: 80-83%
C+: 77-79%
C: 73-76%
C-: 70-72%
D+: 67-69%
D: 63-66%
D-: 60-62%
F: 0-59%

***Ground Rules*:**

23. Class attendance is the responsibility of the student. Attendance will not be recorded.

    All exams MUST be taken during the scheduled time, and there will be no makeup for missed exams. All students are required to take ONLY 3 of the 4 unit exams. This policy is to accommodate illness, weddings, funerals, court appointments, oversleeping, transportation difficulties, and other personal obligations. If all four exams are taken, the highest three scores will be counted. This purpose of this policy **IS NOT** to help you improve your grade, but to allow each student one excused absence. University excused absences (issued only for travel to university sanctioned events that are issued by the Provost's Office) are the only exception to this policy.

24. Late Assignments: All assignments handed in after the class period in which they are due will be penalized by 10% per week. All assignments that are not handed in within 2 weeks of the assigned due date will be assigned a grade of 0 points. All

assignments are expected to be neatly typed and stapled – hand written and/or unstapled papers will not be accepted. If you need assistance in locating computing facilities on campus, please contact me and I will assist you.

25. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the University Honor Code Procedures and as outlined in the university catalog. Violations may result in an F for the course grade and dismissal from the University.
26. Use of head phones, cell phones, and any other unapproved electronic devices during exams is prohibited and constitutes a violation of academic integrity (cheating) and may result in an F for the course grade and/or dismissal from the University.
27. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class.
28. Students are expected to keep copies of all work submitted for a grade in case of computer failure or similar mishaps.
29. Students shall not engage in any inappropriate, dangerous, offensive, or illegal behavior at any time during the course, or in any submitted work. Failure to maintain a safe environment of mutual respect may result in failure of the course.

University Policies and Statements:

The Americans with Disabilities Act & Accommodations

In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)

If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

Academic Dishonesty

As a student of Lake Superior State University, you are required to refrain from any form of academic dishonesty or deception (intentional or unintentional) such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer programs, lab reports, quizzes, or tests. A full description of the University's policies on academic dishonesty is available in the catalogue – you are responsible for familiarizing yourself with them. Acts of academic dishonesty may be punishable by a failing grade on the assignment or the course, at the instructor's discretion. Additional consequences may include dismissal from the University.

Tentative Course Outline

Note: this course outline is subject to change without notice. Under most circumstances exam dates will typically not change except due to university closure or cancellation of classes.

Week of:	Day	Topic	Assignment
27-Aug	M	Syllabus, Intro to Env. Sci.	-
	W	Global Env. Issues/Env Policy Econ	CH 1/2
	F	Env Policy and Economics	CH 2
3-Sep	**M**	**Labor Day - No Class**	-
	W	Ecology and Organisms	CH 3
	F	Ecology and Organisms	CH 3
10-Sep	M	Ecology and Populations	CH 4
	W	Ecology and Populations	CH 4
	F	Ecosystems	CH 5
17-Sep	M	Ecosystems	CH 5
	W	**Exam 1**	-
	F	Biodiversity and Ecosystem Use	CH 6/7
24-Sep	M	Biodiversity and Ecosystem Use	CH 6/7
	W	Human Population	CH 8/9
	F	Human Population	CH 8/9
1-Oct	M	Hydrologic Cycle	CH 10
	W	Soils	CH 11
	F	Agriculture and Food	CH 12
8-Oct	M	Pest Control	CH 13
	W	**Exam 2**	-
	F	Energy from Fossil Fuels	CH 14
15-Oct	M	Energy from Fossil Fuels	CH 14
	W	Energy Documentary	-
	F	Energy Documentary	-
22-Oct	M	Nuclear Power	CH 15
	W	Alternative Energy	CH 16
	F	Alternative Energy	CH 16
29-Oct	M	Climate Change	CH 18
	W	**Exam 3**	-
	F	Climate Change	CH 18
5-Nov	M	Climate Change Documentary	-
	W	Climate Change Documentary	-
	F	Climate Change	CH 18
12-Nov	M	Air Pollution	CH 19
	W	Air Pollution	CH 19
	F	Air Pollution	CH 19
19-Nov	M	Water Pollution	CH 20
	W	**Thanksgiving Break - No Class**	-
	F	**Thanksgiving Break - No Class**	-
26-Nov	M	Water Pollution	CH 20
	W	**Exam 4**	-
	F	Solid Waste	CH 21
3-Dec	M	Hazardous Waste	CH 22
	W	Hazardous Waste	CH 22
	F	Exam Review	-
10-Dec		**Final Exam - Time TBA**	-

NSCI 104 (0,2) Environmental Science Lab 1 Cr.

Prerequisites: None, Corequisite: NSCI 103

Instructor(s): Derek D. Wright, Ph.D.
315 Crawford Hall, x2628,
dwright1@lssu.edu (*don't forget the 1 after my name)

Lab meeting times:

Section 1: Tuesday	8:00-9:50am
Section 2: Tuesday	6:00-7:50pm
Section 3: Wednesday	2:00-3:50pm
Section 4: Friday	8:00-9:50am

Office Hours: (other times by appointment)

Monday	Tuesday	Wednesday	Thursday	Friday
9-10	1-2	9-10		8-10

Required Texts:

Environmental Science Lab Manual, available from the LSSU Chemistry Club

Recommended Text: N/A

Course Description: Laboratory component of environmental science. Corequisite: NSCI103.

Course Goals: Students will gain experience in the scientific method, experimental methods and the presentation and interpretation of data related to the environmental sciences.

Course Objectives: At the conclusion of NSCI 104 students will:

Be able to generate, analyze, and communicate experimental data
Be able to utilize modern software in the presentation of data
Be able to generate a formal scientific report
Be able to apply the scientific method

General Education Objectives:
This course is designed to meet the Naturally Science General Education Outcome. Upon successful completion of this course, the student will be able to:

Incorporate empirical evidence in the analysis of the causes and consequences of natural phenomena

Grading Scale and Policies:
Point Values:

Grading:

Class:	10 – lab reports (5 pts)	50 points
	2 – Formal Report	20 points
	1- Final Exam	30 points
Total:		**100 points**

Grading of standard lab reports (criteria for formal reports is in the lab manual):

Pts	**Criteria met**
0	No Attendance/No lab report
2	Attendance at lab, no report submitted
3	Attendance at lab, lab report submitted but largely incomplete
4	Attendance at lab, lab report submitted but partially incomplete
5	Attendance at lab, completed lab report submitted

Grading Scale:

A: 93-100%
A-: 90-92%
B+: 87-89%
B: 83-86%
B-: 80-83%
C+: 77-79%
C: 73-76%
C-: 70-72%
D+: 67-69%
D: 63-66%
D-: 60-62%
F: 0-59%

***Ground Rules*:**

30. Class attendance is mandatory. More than 2 absences **FOR ANY REASON** will result in automatic failure of the course. In case of sudden illness or other reasonable excuse, students must notify the instructor prior to the beginning of the scheduled lab period. In some cases, students may be permitted to make up a missed class during another section with the instructors permission. There will be no make up labs after last section each week.

    All exams MUST be taken during the scheduled time. There will be no makeup for missed exams without the prior approval of the instructor. If you are suddenly ill, or otherwise unable to attend the exam during the scheduled time, you are expected to notify me by phone or email

prior to the beginning of the exam as why you unable to attend. If you do not notify me and/or provide appropriate documentation for a missed exam, I reserve the right to not permit a make up exam.

Late Assignments: All assignments handed in after the class period in which they are due will be penalized by 10% per week. All assignments that are not handed in within 2 weeks of the assigned due date will be assigned a grade of 0 points. All assignments are expected to be neatly typed and stapled – hand written and/or unstapled papers will not be accepted. If you need assistance in locating computing facilities on campus, please contact me and I will assist you.

31. Students are expected to perform all assigned work themselves. Any form of cheating or plagiarism will be handled in accordance with the University Honor Code Procedures. Violations may result in an F for the course grade.
32. Use of head phones, cell phones (and any other electronic devices), and hats during exams is prohibited. All materials containing information relevant to the course must be contained within a backpack or similar container, or a grade of F will be assigned. at the instructors discretion, cheating may also resulting failure of the course and dismissal from the University may result.
33. Cell phones must be turn off for all class and lab sessions. If the cell phone is on and rings, the student will be asked to leave the class.
34. Students are expected to keep copies of all work submitted for a grade in case of computer failure or similar mishaps.

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Tentative Course Outline

Lab #	Week of:	Topic	Pg in Lab manual
1	27-Aug	Course Introduction/Intro to excel	N/A
2	3-Sep	**No Lab – Labor Day**	
3	10-Sep	Measurements and Spreadsheets Made Easy	4
4	17-Sep	Dichotomous Key/Fun with worm farming	31
5	24-Sep	Analysis of a Natural Community (outside)	25
6	1-Oct	Growth of a Yeast Population/Population Analysis	39/45
7	8-Oct	Comparison of the Energy Content of Fuels	17
8	15-Oct	Toxicity testing	67
9	22-Oct	Acid Precipitation & pH	51
10	29-Oct	Surface Water Analysis: Chloride,and Conductivity	57
11	5-Nov	Recycling Center	65
12	12-Nov	Identification of Common Plastics	11
13	19-Nov	**No Lab - Thanksgiving Recess**	-
14	26-Nov	Worm Farm wrap up (Formal Report Assigned)	31
15	3-Dec	**Lab Final Exam (Worm Farm Report Due)**	-

Reading assignments: You are responsible for reading each experimental procedure prior to attending lab

POLI 201 – Introduction to Public Administration

Crawford Hall - 304
Fall 2012

Adjunct Instructor: Dan Wyers
Education: MPA, BS, Northern Michigan University
Telephone: 906-632-5767
E-Mail: dwyers@lssu.edu
Website: http://dan-wyers.tripod.com
Office Hours: By appointment

Required Text:

Introducing Public Administration, 8th ed., Jay M. Shafritz, E.W. Russell, & Christopher E. Borick, Pearson, 2012.

The Public Administration Casebook, 1st ed., Robert A. Cropf, Jennifer M. Giancola, Kirsten Kim Loutzenhiser, Pearson, 2012.

Students are expected to complete the assigned readings and written assignments prior to each class. It is the student's responsibility to ascertain all announcements and assignments, to obtain class handouts, and inform me in advance if you will not be in class. Your final grade will suffer if you have frequent unexcused absences. In addition, other materials will be distributed during the semester. Role-playing methods, case studies, small group discussions, case study debates, student presentations, and lectures will be some of the methods used in class. The goal is not only to 'cover' the material but also to 'uncover' it. The participation of all students will be required to gain the most benefit from the course. Occasionally, I will assign writing assignments that require you to react in writing to an article or section of the textbook.

Course Description and Objectives:

Public administration involves the core activities of government that are performed, for the most part, by highly trained experts and specialized organizations. These experts, or public administrators, create and implement programs that reflect public policies and recognize the needs and desires of the community for which they serve.

This course will present a review of current issues associated with public administration and the political influences that are involved with public policy decision-making. Current trends in government include reducing the cost of government services by introducing strategies such as decentralization, privatization, partnerships, intergovernmental collaborations and downsizing.

This course will also provide you with an overview of what public administration involves both as an academic field and as the operation of government. A focus will be on how public administration is practiced in today's governments. We will consider the various criticisms aimed at bureaucracies and bureaucrats as well as analyze some of the remedies being suggested. In addition, we will focus on current policies and programs to determine how they are developed and implemented to solve the problems facing our cities, state and nation.

The objectives of this course are to:

- **Provide an understanding of the essential issues affecting the practice of contemporary public administration;**
- **Describe and analyze the important components of public administration (i.e. personnel, organizational theory, budgets, fiscal policy, unionization, policy implementation, evaluation of policy outcomes, and ethics);**
- **Describe some alternatives to large scale bureaucracies as the means for providing public services;**
- **Introduce students to the basic resource materials available for research purposes in public administration;**
- **Examine career possibilities in public administration; and**
- **Develop writing and critical thinking skills, which will cover the basics of writing a term paper on a social science topic.**

The website (http://dan-wyers.tripod.com) connected to this course provides some general resources in public administration. Articles, documents and additional course information relevant to the course will be posted on the site during the semester. Students are expected to check back often for additional information as discussed in class.

Course Requirements and Student Evaluation

Mid-Term Exam	**100 points**
Final Exam	**100 points**
Case Study Paper	**70 points**
Case Study Presentation/Discussion	**30 points**
Meaningful Class Participation	**50 points**
Two Political/Administrative Public Meeting Reports @ 25 points	**50 points**
Four Current Event Article Papers @ 25 points	**100 points**
Total	**500 points**

Final Grade

The following scale will be used to determine your final grade:

Points	Grade
450 – 500	A
400 – 449	B
350 – 399	C
300 – 349	D
0 – 299	F

Examinations

There will be a mid-term and final examination in this course. Each examination will cover all of the material presented prior to that examination; the final examination will be comprehensive. Students will be responsible for the material in the texts and handouts, as well as what is discussed and presented in class. If you have any questions, comments, and/or suggestions concerning the material in the texts or handouts, ask them during the class periods. There will always be time available for discussion during and after each class. The examinations will have multiple choice, short answer and essay questions. Please contact me beforehand if you require special conditions for taking the tests so a suitable format can be arranged.

Policy Making Public Meeting Report

This component of the course requires you to attend and report on a public meeting that is of a policy adoption nature. These could include such options as a city or county commission, a board of education, court trials, planning or zoning boards and local political party meetings. Papers are limited to two typed pages.

Papers should identify the meeting, describe who was in attendance, explain the topics discussed, explain why the meeting was held, portray how the meeting was conducted (i.e. was an agenda available, were there any points of conflict, were votes taken, were there any comments from the public, were you asked why you were attending, did the participants decide anything, and what was the style of the meeting). Explain how the meeting compares with the text. For example, did the meeting provide an example of conflict, problem solving, public relations at work, or democracy in operation? Include any documents handed out at the meeting. If possible, interview one or more of the participants at the meeting for additional information. If the meeting has been reported by the media, then describe the coverage given the meeting, and compare that with your own view of the meeting.

Current Event Article Papers

The Current Event Article Papers should be no longer than two double-spaced pages and must be typed or done on a word processor. In this assignment, you should state and *defend your position* on the issue. You may state your opinion, but where possible, you need to use facts and information to support that opinion. You should include references for these facts and information, but these references may appear on a third page and do not count against the two-page limit. Websites utilized for research should be limited. Academic research is recommended.

Case Study Paper/Presentation

This requirement involves reading and analyzing a case study as assigned in the casebook. Each student will be assigned a case to work on individually. Your task will be to answer the five (5) questions at the end of the case and present it in a paper format with additional academic research to support your answers. The length of your paper should be no more than five pages. A cover sheet, table of contents and citation page are required. You should model the structure of the paper based on the text's five questions at the end of the case study. The paper is due no later than November 29, 2012. Individual in-class presentations will begin the week of November 26, 2012. Presentations of your case study paper will be conducted in Microsoft PowerPoint and meet the following:

1. **Presentation must be organized; link the case study paper to the approach of the text and lecture discussions, and the student must present a good knowledge of their case subject.**

2. ***Final presentation must be submitted by e-mail to me a minimum of one week prior to your presentation. Also, please confirm that I have your final copy and not a draft.***

3. **Presentation and discussion must be a minimum of 15 minutes and no longer than 30 minutes in length. All students are required to read each case study and give meaningful feedback to answers.**

General Comments

An academic papers guide will be available on my website. All written work to be turned in will be word processed or typed. All of your written work will be evaluated on both the quality of its content as well as how it is expressed. Proper grammar, spelling, and punctuation will help your grades.

All research will be from credible sources only and students must provide citation to all content turned in. It is critical that you cite the sources of information you use. When you quote a specific fact, opinion, or idea expressed by someone else, you should cite the source in a specific endnote or footnote. One of the ways students often get in trouble for plagiarism is to forget to cite their sources. Don't let this happen to you. When in doubt, give the citation. If you get carried away and cite when it isn't necessary, I will point that out to you.

Class participation points will be given for *active* participation during the class, which means that your attendance is required.

Various other materials will be available on my website or distributed in class. You are responsible for reading these as part of the course.

Academic Integrity

It is rare for there to be a problem of academic dishonesty in this course. Please read the academic integrity code in your student handbook if you are unclear about potential violations, which include cheating, plagiarism, collusion, falsifying information and helping or hindering others. On occasion, however, a student may be tempted to take a shortcut or to cheat in some way. For anyone who cheats, the policies for this course are clear.

<u>Exam Policy</u>: Any student who is found cheating on an exam will be given a failing grade in the course in addition to any other sanctions imposed by the University.

<u>Paper Policy</u>: Any student who is found cheating or plagiarizes on a paper will be given a failing grade in the course in addition to any other sanctions imposed by the University.

Class Etiquette

It is essential that you respect the interests and needs of your fellow students. Do not do anything that may be disruptive or prevent other people from learning. Disruptively talking in class, having your cellular phone go off, texting, emailing or utilizing an I-pod, etc. will result in you being asked to leave class for that lecture. PLEASE turn off and store all electronic devices prior to entering class.

Lake Superior State University

POLI 201 – Introduction to Public Administration

Crawford Hall - 304
Fall 2012

Proposed Schedule of Classes

Week 1		
August 28	**Introduction**	**Introduction and Course Overview**
August 30	**Lecture**	**IPA Chapter 1 - Defining Public Administration**
Week 2		
September 4	**No Class**	**Labor Day Recess**
September 6	**Lecture**	**IPA Chapter 2 - The Political and Cultural Environment of Public Policy and Its Administration**
Week 3		
September 11	**Lecture**	**IPA Chapter 3 – The Continuous Reinventing of the Machinery of Government**
September 13	**Article 1**	***Article One (1) Paper due – Class Discussion on Topic***
Week 4		
September 18	**Lecture**	**IPA Chapter 4 – Intergovernmental Relations**
September 20	**Lecture**	**IPA Chapter 4 – Intergovernmental Relations**
Week 5		
September 25	**Lecture**	**IPA Chapter 5 – Honor, Ethics, and Accountability**
September 27	**Lecture**	**IPA Chapter 6 – The Evolution of Management and Organization Theory**
Week 6		
October 2	**Article 2**	***Article Two (2) Paper due – Class Discussion on Topic***
October 4	**Lecture**	**IPA Chapter 7 – Organizational Behavior** ***1st Policy Making Public Meeting Report - Due***
Week 7		
October 9	**Review**	**Chapter Review – Mid-Term Exam Review**
October 11	**Exam**	**Mid-Term Exam**
Week 8		
October 16	**Lecture**	**IPA Chapter 8 – Managerialism and Information Technology**
October 18	**Lecture**	**IPA Chapter 8 – Managerialism and Information Technology**
Week 9		

October 23	**Lecture**	**IPA Chapter 9 – Strategic Management and Government Regulation**
October 25	**Lecture**	**IPA Chapter 10 - Leadership**

Week 10		
October 30	**Article 3**	***Article Three (3) Paper due – Class Discussion on Topic***
November 1	**Lecture**	**IPA Chapter 10 - Leadership**
Week 11		
November 6	**Lecture**	**IPA Chapter 11 – Personnel Management and Labor Relations**
November 8	**Review**	**Catch up and preparation for Case Study Papers**
Week 12		
November 13	**Lecture**	**IPA Chapter 12 – Social Equity** ***2nd Policy Making Public Meeting Report - Due***
November 15	**Article 4**	***Article Four (4) Paper due – Class Discussion on Topic***
Week 13		
November 20	**Lecture**	**IPA Chapter 13 – Public Financial Management**
November 22	**No Class**	**Thanksgiving**
Week 14		
November 27	**Lecture**	**IPA Chapter 14 - Program Audit and Evaluation**
November 29	**Case Study**	**Case Study Presentations** ***Case Study Papers Due***
Week 15		
December 4	**Case Study**	**Case Study Presentations**
December 6	**Review**	**Chapter Review – Final Exam Review**
Week 16		
December 11	**Exam**	**Final Exam**

POLI 342 International Environmental Policy (3,0) 3 Cr.

Prerequisites: None

Instructor(s): Melissa Shaffer-O'Connell
Library 234
(906) 635-2339
mshafferoconnell@lssu.edu

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
3:00-4:00 pm	1:00-2:30 pm	3:00-4:00 pm	1:00-2:30 pm	by appointment only

Location: Crawford 305

Course Meeting Times: Tuesday and Thursday 11:00-12:20 PM

Required Text(s): Axelrod, Regina, and Stacy D. Vandeveer, and David Leonard Downie, eds. 2011. *The Global Environment: Institutions, Law and Policy 3rd Edition.* Washington D.C.: CQ Press. ISBN: 978-0-87289-966-7

Students are also required to follow environmental news. One way to do this is to monitor an international environmental newswire such as Environment News Service at http://www.ens-newswire.com/ .

Additional readings will be provided by the instructor.

Course Catalog Description: This course is intended to familiarize students with the efforts of the international community to establish policy guidelines designed to begin the regulation of the global environment. The course covers basic concepts to international relations necessary to understand the general workings of the nation-state system. It then begins an exploration of significant historical international environmental issues and the ways in which these have been dealt with by the international community. The course further challenges students by investigating various alternative solutions for solving the myriad of global environmental problems faced by all of humankind in the new century.

Description of the Course: Environmental policy is a complex topic and so in order to fully examine the topic we will be studying concepts from public policy, politics, law, history, economics, and science. There will be case studies including climate change, hazardous chemicals, and nuclear energy.

Course Objectives: At the conclusion of POLI 342, students should be able to:

1. Describe the basic perspectives on international cooperation, the nature of international institutions and policy regions, and the concept of sustainable development.
2. Describe and analyze the development of global environmental institutions, laws, regimes, and policies.
3. Describe the linkages among national and international actors as well as public institutions, firms, and nongovernmental organizations.
4. Analyze specific case studies varying from climate change to hazardous chemical regulation.

Instructional Strategy: Primarily lecture and class discussion. Videos may be shown when relevant to content. Debates, group work, and other activities will also be used during the class period. The PowerPoint slides used during lectures will be published on Blackboard.

Course Format and Procedures: Most material will be drawn from the textbook, with supplementary readings posted on BLACKBOARD or handed out in class. Examinations, quizzes and other classwork to be assigned will be drawn entirely from lectures, materials in the textbook and other materials provided to students. All class deadlines will be strictly enforced.

Course Requirements and Assessment:

In order to pass the course, you will need to fulfill all of the following requirements:

Percentage of Final Grade

1. Attendance and Participation	20%
2. Current Event Presentations (2)	10%
3. Weekly Class Assignments	20%
4. Paper and presentation	20%
6. Exams (3)	30%
	100%

Attendance and Participation: Attendance, class participation, and discussion are, of course, required and necessary for a good outcome in this course. Assigned readings should be completed by the scheduled class in order to stimulate discussion and learning. Students will be evaluated for this requirement of the course based on their attendance and contributions to class discussions. Students who miss class for official university business may be required to show documentation. Those who miss because of a serious illness or family emergency should contact me as soon as possible to have the absences excused and make up missed work.
***Cell phones and laptops: Laptops may be used for academic work only. Use of social networking sites and other non-academic purposes will forfeit attendance points for that day. Use of cell phones during class is strictly prohibited. Students found using cell phones during the class period will be asked to leave the class and will be counted as absent for that day.

Current Event Presentations: The first week in class you will choose two class periods during the semester to present a current event from that week that is relevant to international environmental policy. It will be an oral presentation of a few minutes length explaining and leading a class discussion of the event.

Weekly Class Assignments: In addition the required research paper, there will be daily class assignments. These will be announced in class and due at the beginning of the following class period unless otherwise stated. No late assignments will be accepted. The lowest grade will be dropped at the end of the semester. This requirement accounts for 15% of the final grade.

Paper: Each student is required to write a paper on an international environmental issue of interest to him/her. The paper will consist of an overview and background of the issue, including how politics and policy have affect the issue.

The paper should be 10-12 pages in length (not including the title page or bibliography), Times New Roman, double spaced, standard margins. Points will be deducted for papers less than 10 full pages and any writing past the bottom of the 12th page will be ignored. For the papers, you will be expected to provide proper citations, either Chicago or APA style. For reference guides consult the library or the Web.

You will present the paper in class in a 10-15 minute presentation during the week we discuss similar issues to your topic.

Exams: Each in-class exam will cover material from the previous weeks' lectures and readings. The exams will be a combination of multiple choice, true/false, matching, map identification, short answer, and essay questions.

Special Policies on late submissions: Late submissions will not be accepted unless prior approval is granted. Similarly, exams cannot be made up except for excused absences or unless prior arrangements have been made.

Grading Scale:

98-100	A+	70-77	C
92-97	A	68-69	C-
90-91	A-	66-67	D+
88-89	B+	62-65	D
82-87	B	60-61	D-
80-81	B-	0-59	F
78-79	C+		

Academic Honesty: You are expected to do your own work for all assignments, both major and minor. Cheating of any kind undermines the entire system of teaching and learning. Any toleration of cheating is therefore unfair to the great majority of students who do not cheat. To discourage any temptation to cheat—and you may all occasionally feel that temptation—my policy on cheating is firm and simple: any student caught cheating, no matter how insignificant the incident, will automatically fail the course. In addition, a report will be filed with the Provost's office, which will keep this report on file for five years. The student's academic program may also be notified, and this could lead to dismissal from the program. In severe cases, or for repeat

offenders, the Scholastic Standards Committee can expel a student from school. The university's detailed policy on cheating is covered in the LSSU Student Handbook, which may be found at www.lssu.edu/studenthandbook.

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The Americans with Disabilities Act & Accommodations
In compliance with Lake Superior State University policies and equal access laws, disability-related accommodations or services are available to students with documented disabilities.

If you are a student with a disability and you think you may require accommodations you must register with Disability Services (DS), which is located in the KJS Library, Room 130, (906) 635-2355 or x2355 on campus. DS will provide you with a letter of confirmation of your verified disability and authorize recommended accommodations. This authorization must be presented to your instructor before any accommodations can be made.

Students who desire such services should meet with instructors in a timely manner, preferably during the first week of class, to discuss individual disability related needs. Any student who feels that an accommodation is needed – based on the impact of a disability – should meet with instructors privately to discuss specific needs.

IPASS (Individual Plan for Academic Student Success)
If at mid-term your grades reflect that you are at risk for failing some or all of your classes, you will be contacted by a representative of IPASS. The IPASS program is designed to help you gain control over your learning through pro-active communication and goal-setting, the development of intentional learning skills and study habits, and personal accountability. You may contact 635-2887 or email ipass@lssu.edu if you would like to sign up early in the semester or if you have any questions or concerns.

Tentative Course Outline

Please read the material before the class meeting for which it is assigned. I will announce any changes in readings or assignment due dates in class and with enough time for you to make the appropriate adjustments to your schedules.

Session Number	Week	Day	Date	Topic	Reading Assignment	Assignment Due
Lecture 1, 2	1	T	1/10	Introduction to Course, Governing the International Environment	Syllabus	
Lecture 2	1	R	1/12	Governing the International Environment	Axelrod et al. Chapter 1	Sign up for Current Event Presentations
Lecture 3	2	T	1/17	Global Environmental Institutions	Axelrod et al. Chapter 2	Week 1 Assignment due
Lecture	2	R	1/19	Global Environmental		Paper topic

3				Institutions, cont.		due
Lecture 4	3	T	1/24	International Environmental Law	Axelrod et al. Chapter 3	Week 2 Assignment due
Lecture 4	3	R	1/26	International Environmental Law, cont.		Week 3 Assignment due
Lecture 5	4	T	1/31	Global Environmental Policy	Axelrod et al. Chapter 4	
Lecture 5	4	R	2/2	Global Environmental Policy, cont.		Week 4 Assignment due
Lecture 6	5	T	2/07	Environmental NGOs	Axelrod et al. Chapter 5	Week 5 Assignment due
Exam 1	5	R	2/9	**Exam 1**		**Exam 1**
Lecture 7	6	T	2/14	Climate Change Policy	Axelrod et al. Chapter 6	**Student Presentations begin**
Lecture 7	6	R	2/16	Climate Change Policy, cont.		Week 6 Assignment due
Lecture 8	7	T	2/21	Hazardous Chemicals	Axelrod et al. Chapter 7	
Lecture 8	7	R	2/23	Hazardous Chemicals, cont.		Week 7 Assignment due
Spring Break	8	T, R	2/28, 3/1	**Have a great Spring Break!**		**Spring Break**
Lecture 9	9	T	3/6	Economic Integrity and Environmental Protection	Axelrod et al. Chapter 8	
Lecture 9	9	R	3/8	Economic Integrity and Environmental Protection, cont.		Week 9 Assignment due
Lecture 10	10	T	3/13	Compliance with Global Environmental Policy	Axelrod et al. Chapter 9	
Lecture 10	10	R	3/15	Compliance with Global Environmental Policy, cont.		Week 10 Assignment due
Exam 2	11	T	3/20	**Exam 2**		**Exam 2**
Lecture 11	11	R	3/22	U.S. and Global Environmental Politics	Axelrod et al. Chapter 10	
Lecture 11, 12	12	T	3/27	U.S. and Global Environmental Politics, cont., E.U. and Environmental Policy	Axelrod et al. Chapter 11	Week 11 Assignment due
Lecture	12	R	3/29	E.U. and Environmental		Week 12

12				Policy, cont.		Assignment due
Lecture 13	13	T	4/3	Developing Countries in Global Environmental Policy	Axelrod et al. Chapter 12	
Lecture 13	13	R	4/5	Developing Countries in Global Environmental Policy, cont.		Week 13 Assignment due
Lecture 14	14	T	4/10	China's Energy and Environment Policy	Axelrod et al. Chapter 13	
Lecture 14	14	R	4/12	China's Energy and Environment Policy, cont.		Week 14 Assignment due
Lecture 15	15	T	4/17	Czech Republic and Nuclear Power	Axelrod et al. Chapter 14	
Lecture 15, 16	15	R	4/19	Consumption, Commodity Chains, and the Global Environment	Axelrod et al. Chapter 15	Week 15 Assignment due
Final Exam	16	W	4/25	Wednesday, April 25th, 10 AM to noon		**Final Exam**

Appendix F:

EHAC Course Requirement Table
(on following pages)

Syllabi are provided in appendix E

Additional information can be found in the University Catalog at:

http://www.lssu.edu/cmscatalog1213/welcome.php

Note: Courses below listed with an * are directed electives (see end of table for full list) which must total 6 semester hours.

EHAC Academic Guidelines	Course Designation	Course Name	Credit Hour (Semester)	% Course Time Corresponding to EHAC Guideline	Principal Instructor(s)
Foundation Areas: Methodology Core (separate courses required) **Epidemiology and Statistical Methods may be combined if course is ≥ 4 semester hours*					
Epidemiology	BIOL 285	Principles of Epidemiology	3	100	G. Zimmerman (Biology)
Statistical Methods*	MATH 207 BIOL 280*	Principles of Statistical Analysis Biometrics	3 3	100 100	Various Math Faculty G. Zimmerman (Biology)
Toxicology	CHEM 353	Introductory Toxicology	3	100	T. Nguyen
Foundation Areas: Related Areas (basic understanding required)					
Environmental Health Management	EVRN 317 HLTH 210	Environmental Health Applications Intro to Health Care Concepts	4 3	5% 20%	D. Wright Nursing Faculty
Environmental Law & Public Policy	NSCI 103 EVRN 311	Environmental Science Environmental Law	3 4	10% 20%	D. Wright D. Wright/A. Hernandez
	ECON 307 POLI 342*	Environmental Economics Intl. Environmental Policy	3 3	20% 100%	Economics Faculty
Environmental Emergency Management Systems	EVRN 317 EVRN 311	Environmental Health Applications Environmental Law	4 3	5% 10%	D. Wright Wright/Hernandez
Environmental Administration	POLI 201 HLTH210 HLTH 328 EVRN 311	Intro to Public Administration Intro to Health Care Concepts Multicultural Approaches to Healthcare Environmental Law	3 3 3 3	10% 5% 10% 5%	Various Political Sci. Faculty Various Nursing Faculty Various Nursing Faculty Wright/Hernandez
Risk Analysis	NSCI 103 EVRN 317 BIOL 285 EVRN 313	Environmental Science Environmental Health Applications Epidemiology Solid & Hazardous Waste	3 4 3 3	5% 10% 10% 15%	D. Wright D. Wright G. Zimmerman Wright/Hernandez
Risk Assessment	EVRN 317 BIOL 285 EVRN 313	Environmental Health Applications Epidemiology Solid & Hazardous Waste	4 3 3	10% 10% 15%	D. Wright G. Zimmerman Wright/Hernandez
Risk Communication	EVRN 317 BIOL 285 EVRN 313	Environmental Health Applications Epidemiology Solid & Hazardous Waste	4 3 3	10% 10% 15%	D. Wright G Zimmerman Wright/Hernandez
Risk Management	EVRN 317 EVRN 313	Environmental Health Applications Solid & Hazardous Waste	3 3	10% 10%	D. Wright Wright/Hernandez
Technical Areas (All the following topics shall be covered in one or more courses)					
Air Quality	NSCI 103 CHEM 341 EVRN 317 EVRN 425	Environmental Science Environmental Chemistry Environmental Health Applications Environmental Systems Analysis	3 4 3 4	5% 25% 7% 7%	D. Wright D. Wright D. Wright A Hernandez

Food Protection	EVRN 317 BIOL 285	Environmental Health Applications Epidemiology	4 3	20% 15%	D. Wright G. Zimmerman
Occupational Health and Safety	EVRN 317 EVRN 313 BIOL 285	Environmental Health Applications Solid & Hazardous Waste Epidemiology	4 3 3	7% 15% 7%	D. Wright Wright/Hernandez G. Zimmerman
Water and Wastewater	NSCI 103 EVRN 425 EVRN 317 CHEM 341	Environmental Science Environmental Systems Analysis Environmental Health Applications Environmental Chemistry	3 4 4 4	5% 20% 15% 25%	D. Wright A. Hernandez D. Wright D. Wright
Solid and Hazardous Materials and Waste Management	NSCI 103 EVRN 313 EVRN 425	Environmental Science Solid & Hazardous Waste Environmental Systems Analysis	3 3 4	10% 80% 10%	D. Wright Wright/Hernandez A Hernandez
Disease Prevention e.g. vectorborne, zoonotic, etc	NSCI 103 EVRN 317	Environmental Science Environmental Health Applications	3 4	5% 10%	D. Wright D. Wright
Environmental Health Programmatic Areas: (in-depth study in at least four areas)					
Air Quality	NSCI 103 CHEM 341 EVRN 317 EVRN 425	Environmental Science Environmental Chemistry Environmental Health Applications Environmental Systems Analysis	3 4 3 4	5% 25% 7% 7%	D. Wright D. Wright D. Wright A. Hernandez
All Hazards Preparedness					
Built Environment					

Disease Prevention	BIOL 285 HLTH 210 HLTH 328	Epidemiology Intro to health care Concepts Multi. Approaches to Healthcare	3 3 3	10% 50% 30%	G. Zimmerman Various Nursing Faculty Various Nursing Faculty
Environmental Health Planning					
Food Protection	EVRN 317 BIOL 285	Environmental Health Applications Epidemiology	4 3	20% 15%	D. Wright G. Zimmerman
GIS	EVRN 131 EVRN 231	Intro. To GIS and GPS Intermediate GIS	3 2	100% 100%	Hernandez/McCready Hernandez/McCready
Global Environmental Health					
Hydrogeology	GEOL 411	Hydrological Systems: Surface & Groundwater	4	100%	A. Hernandez
Injury Prevention					
Institutional Health					
Occupational Health & Safety					
Radiation Health					
Recreational Environmental Health	NSCI 103 EVRN 317 CHEM 341	Environmental Science Environmental Health Applications Environmental Chemistry	3 4 4	5% 10% 5%	D. Wright D. Wright D. Wright
Risk Analysis					

Soils	BIOL 230*	Intro to Soil Science	4	100%	D. Merkel (Biology)
Solid & Hazardous Materials & Waste Management	NSCI 103 EVRN 313 EVRN 425	Environmental Science Solid & Hazardous Waste Environmental Systems Analysis	3 4 4	10% 80% 10%	D. Wright Wright/Hernandez A Hernandez.
Vector Control					
Water & Wastewater	NSCI 103 EVRN 425 EVRN 317 CHEM 341	Environmental Science Environmental Systems Analysis Environmental Health Applications Environmental Chemistry	3 4 4 4	5% 20% 15% 25%	D. Wright D. Wright D. Wright A. Hernandez
Field Experience and Problem-based Learning: (180-clock hours total)					
Field Experience	INTD 399 EVRN 395	Internship in Environmental Health Senior Project	4 1-2	100% 100%	Wright/Hernandez Various
Background Areas: Basic Sciences					
Biological Sciences (with laboratories)	BIOL 131 BIOL 132	General Biology: Cells General Biology: Organisms	4 4	100% 100%	N. Kirkpatrick J. Garvon
Microbiology (with laboratory)	BIOL 204	General Microbiology	4	100%	M. Hutchens
General Chemistry (with laboratories)	CHEM 115 CHEM 116	General Chemistry I General Chemistry II	5 5	100% 100%	Blanchard/Iretski Iretski
Organic Chemistry (with laboratories)	CHEM 225 CHEM226	Organic Chemistry I Organic Chemistry II	4 4	100% 100%	Mosey/Nguyen Mosey
Physics	NSCI 102 or PHYS 221 or PHYS 231	Conceptual Physics Principle of Physics I App. Physics Engrs. & Scientists I	4 4 4	100%	M. Spencer
Basic Sciences	Directed Electives	Various	3-6	100%	Various
Background Areas: Communication (proficiency in oral and written communication)					
Information technology/computer skills	EVRN 131 EVRN 231	Intro. To GIS and GPS Intermediate GIS	3 2	100% 100%	Hernandez/McCready Hernandez/McCready
Public Speaking	COMM 101	Speech	3	100%	Various Comm. Faculty
Technical Writing	ENGL 110 ENGL 111 EVRN 395 EVRN 499 Other	Freshman Comp I Freshman Comp II Junior Seminar Senior Seminar Writing Intensive Course Components	3 3 1 1 Variable	100% 100% 30% 30% Variable	Various English Faculty Various English Faculty D. Wright M. Werner Various
MATHEMATICS: College Algebra or higher (calculus recommended)					
College Algebra	MATH 112	Calculus for Business & Life Sciences	4	**100%**	Various Math Faculty

Background Areas: General Education (University's general requirement must be satisfied in humanities and social sciences)					
Humanities	HUMN 231 Variable	Humanities I Variable (approved courses)	4 3-4	100% 100%	Various HUMN Faculty
Social Sciences	ECON 202 SOCY 101	Princ. Microeconomics Intro to Sociology	3 3	100% 100%	Various Various
Background Areas: Electives (as necessary)					
Directed Electives to total 6 add hrs.	BIOL 126 BIOL 220 BIOL 230 BIOL 280 BIOL 422 CHEM 332 CHEM 251 INTD 300 POLI 342	Interp of Maps/Aerial Photo. Genetics Intro. To Soil Science Biometrics Parasitology Instrumental Analysis Intro. Biochem The Human Environment Intl. Environmental Policy	2 4 4 3 3 4 4 3 3		D. Merkel (Biology) N. Kirkpatrick (Biology) D. Merkel (Biology) G. Zimmerman (Biology) J. Garvon (Biology) C Heth M Werner D. Merkel (Biology)

cipHi
Canadian Institute of Public Health Inspectors
Board of Certification

Approved School Bi-Annual Update

Part A (to be completed by BOC member):	
School Name: Lake Superior State University	
Program and Department Head: Derek Wright	**Last BOC School Approval Date:** September 2014
BOC Advisory Committee Member Name: Garth Gosselin	

Part B (to be completed by Approved School Representative):		
Number of students currently enrolled in the program: 0	**Number of students expected to graduate this year from the program:** 0	**Last Advisory Committee meeting date:** Feb 11, 2016

Name of CPHI(C) instructors (including part-time)	Current Regular CIPHI members	Name of CPHI(C) instructors (including part-time)	Current Regular CIPHI members
1. Sherri Cleaves	☐ Yes ☐ No	10.	☐ Yes ☐ No
2. Note, additional staff as program is implemented	☐ Yes ☐ No	11.	☐ Yes ☐ No
3.	☐ Yes ☐ No	12.	☐ Yes ☐ No
4.	☐ Yes ☐ No	13.	☐ Yes ☐ No
5.	☐ Yes ☐ No	14.	☐ Yes ☐ No
6.	☐ Yes ☐ No	15.	☐ Yes ☐ No
7.	☐ Yes ☐ No	16.	☐ Yes ☐ No

Part C (to be completed by BOC member):	**Part D** (to be completed by Approved School Representative):
BOC Requirements and / or Recommendations in the Report:	**Status of the recommended actions:**
Implementation of the proposed curriculum changes as outlined in the letter dated Nov 19, 2013 and email submission of March 14, 2014	The following curriculum changes have been implemented as previously submitted: EVRN 425 has been increased from 3 credit hours (2,3) to 4 credit hours (3,3) to allow more time to cover the remaining objectives in EVRN 317. All objectives from EVRN 317 under 1.2 (Air Quality) will be now be covered in EVRN 425. Discussion of outdoor (natural) recreational waters under 3.2 (Recreational Water Quality), has been moved to CHEM341. Water/wastewater treatment content from CHEM 341 has also shifted to EVRN 425. Incorporation of CIPHI instructors will occur as agreed, as the first cohort moves through the program
That the school continue to address all IO's currently in place as well as revies IO's when introduced.	The faculty meets regularly to discuss and evaluate curriculum, and changes are made as necessary to comply with IO's and to ensure student learning objectives are met. Any proposed changes to the program will be submitted to the Board for approval.
That the program is approved for classroom learning only not online learning.	No online instruction is offered, and there are no plans to offer any online instruction.
Provision of an MOU with any health unit wishing to participate in the internship program	At this time, the Algoma Health Unit remains the only internship site. No internships have been completed as no cohort has yet enrolled
Maintenance of the current MOU with Sault College	Agreement is currently in place and on file with the Registrar
Report back to the board regarding the internship program including info from the school, the student and the host employer	N/A (see above)

Part E (to be completed by Approved School Representative)**:**	
Any expected upcoming changes to the curriculum: No	
Any other comments:	
Completed by (please print): Derek D Wright, PhD	**Date:** 5/10/16

International Fire Service Accreditation Congress

Lake Superior State University

Bachelor of Science in Fire Science and Associate of Applied Science in Fire Science Degree Programs

Reaccreditation Site Visit Report by the Degree Assembly of the International Fire Service Accreditation Congress March 24 and 25, 2014

International Fire Service Accreditation Congress (IFSAC) Team:

Visiting team:
Lee Silvi, Lakeland Community College
Bill Klein, Chemeketa Community College

Reader:
Casey Hall, Kentucky Fire Commission

This document serves as a record of the IFSAC Degree Assembly accreditation site visit at Lake Superior State University (hereafter referred to as LSSU), Sault Sainte Marie, Michigan.

LSSU annual enrollment stands at approximately 2,200 credit students college-wide. There are approximately 120 actively enrolled in the Bachelor of Science Fire Science degree program, and 100 students actively enrolled in the Associate of Applied Science – Fire Science degree program (hereafter referred to as "the programs"). The campus is physically located at 650 W. Easterday Avenue in Sault Ste. Marie, Michigan.

The college is seeking reaccreditation for both of the aforementioned programs. The self-study was exemplary, well supported with documentation, and representative of the commitment of the college and the programs. Our site visit confirmed the details found in the self-study allowing for a thorough evaluation of the program.

Sunday, March 23:

As there are only two flights in and out of Sault Ste. Marie to Detroit daily, Lee Silvi and Bill Klein met up at the Detroit airport and flew to Sault Ste. Marie on the same jet. They were picked up at the airport by Dr. James Schaefer and taken to their hotel. The team held an organizational meeting and discussions at the airport while awaiting our flight to Sault Ste. Marie.

Monday, March 24:

The site team was provided a private space, computer, telephone, printer and copies of relevant documentation in the Alumni Room at the Walker Cisler Conference Center. The room and computer services were adequate to the needs of the team. The site team, including our reader had conducted an in-depth review of the self-study prior to arriving for the site visit.

Additionally, the site visitors had access to Blackboard in advance and spent time reviewing the single fire-related course being taught this semester. Lastly, a reasonable amount of time was spent communicating by phone and email among the site team, reader, and LSSU personnel to address any concerns raised prior to and after our arrival for the visit.

Introductory meeting and tour

First on the agenda Monday was a meeting with the fire science faculty and a brief tour of the Criminal Justice/Fire Science/EMS office areas.

Meeting with LSSU Provost and Vice President for Academic Affairs

Next the team members met with Mr. Morrie Walworth, who is the LSSU Provost and Vice President for Academic Affairs. We explained the mission of IFSAC and our site visit, and explained that IFSAC is officially recognized by CHEA as the only accrediting body for academic programs in fire science and allied fields. It was also noted that IFSAC has been recognized by FESHE for its work in promoting academic excellence in fire science and related programs.

The Provost expressed his support of the fire-related programs faculty / staff charged with insuring it success. The Provost was the first of many persons we met with who made statement to the effect that he foresees future needs for expansion of the program facilities. He further discussed the need for shared governance expected of the incoming new college President.

Meeting with Dr. Paige Gordier, Dean – College of Arts, Letters, Social Science and Emergency Services

Next the team members met with Dr. Paige Gordier, Dean – College of Arts, Letters, Social Science & Emergency Services . We again explained the mission of IFSAC and our site visit, and explained that IFSAC is officially recognized by CHEA as the only accrediting body for academic programs in fire science and allied fields. It was also noted that IFSAC has been recognized by FESHE for its work in promoting academic excellence in fire science and related programs.

A general discussion was held regarding the programs. She reinforced her support of the programs, some the future program needs, and her role in advocating for the faculty and insuring program success. The Dean indicated the college was working on outcomes and assessment, and she believed the fire-relayed programs were ahead of the curve in accomplishing this.

Campus tour led by Dr. James Schaefer/Dr. Terry Heyns

Monday morning we were provided a brief tour of the Criminal Justice/Fire Science/EMS classroom and storage areas. Dr. Shaefer explained they had somewhat recently acquired underutilized spaces within the building to further facilitate program operations along with classroom and storage needs.

Visit to Library & Learning Center – Ms. Carolyn Rajewski / Ms. Ruth Neveau

Just before lunch the team visited the Learning Center and the Library. The Learning Center was extremely well staffed with college employees and numerous peer tutors. We were informed the use of the peer tutors has contributed greatly to student success, and we were very impressed with this operation. Many types of remedial and intervention programs are in place at LSSU and the students using the center seemed to be very engaged.

After our tour of the Learning Center we went to the library where we were escorted on a tour by Ms. Ruth Neveu. The library currently houses a sufficient collection of fire-related books in print, but is in the process of updating the collection. The site team encouraged the library to continue updating the print collection, as newer editions of some materials have been released.

The most current and continuously updated NFPA Codes and Standards are available online to all students, faculty, and staff. LSSU participates in inter-library loans with selected other Michigan libraries, and countless other resources and searches are available electronically. The library has maintained paper copies of fire-related periodicals as far back as the 1980s, and we urged them to continue to do so. Our logic is that it is rare we find new ways to injure or kill firefighters on the job, thus these reference materials are excellent for "lessons learned" case studies to reinforce safety and survival. A suggestion was made on how to document the access and use of textbooks in cases where students use the materials in the library but do not actually check the books out.

Lunch and Interviews over Lunch

The site team elected to have lunch in the main student dining hall, known as the *Quarterdeck*. This also allowed us to have lunch observe the general student population, and discuss the program with three students. One was a senior, and two were freshman. They talked at great length and answered many of our questions regarding the programs. Overall, the students had nothing but positive comments regarding their fire-related program experiences.

Meeting with Ms. Sherry Brooks, Vice President of Business/Finance

Ms. Brooks explained the LSSU budget process to us, and indicated there is a $25 per semester hour course fee for all fire-related courses. The proceeds from this fee go directly to the program, and not the college's general fund. She also indicated the college has processes in place should there be an unexpected emergency need for a program. The site visitors asked many questions regarding the college finances, and in the end were quite satisfied the college has an excellent budget process in place.

Alumni Room – Cisler Center

The final portion of the day was spent by the site team reviewing the day's meetings and continuing to conduct research related to the site visit.

Dinner Meeting with Dr. James Schaefer, Dr. Terry Heyns, Chief Jason Thorpe, Chief Pat Parker, and Chief Bryce Tracey

The day ended with a dinner meeting to discuss the LSSU program and other matters.

Tuesday, March 25:

Alumni Room – Walker Cisler Conference Center

On Tuesday morning we began by reviewing what we had done thus far, researching other materials, and planning for Tuesday's events. Additionally, in the weeks leading up to our site visited it had been documented to IFSAC, CHEA, the DABOG, and these site visitors, that a publicly available link to the program outcomes and assessment had been provided. Somehow the link had disappeared, and after discussion with Dr. Shaefer regarding the matter he called the webmaster and the link was fixed within fifteen minutes.

Classroom Observations

On Tuesday we observed a small portion of a hazardous materials course, where Dr. Heyns was working patiently with students completing paperwork and attempting to obtain FEMA Student Identification Numbers. At the break Bill and I met separately with students we picked at random.

Also on Tuesday we met with a class of Paramedic students as a whole and had an open discussion with said class. Most were third year students who had also completed numerous fire related courses during their time at LSSU.

In both situations above the students were generally pleased with their courses at LSSU. Other comments from the students included the fact they would like to see more hands-on, and their belief that in time, the program will need to expand their brick-and-mortar and program resources.

Meeting with the Fire Science Steering Committee [Advisory Board] – Chief Jason Thorpe, Chief Pat Parker, Chief Forbush, Dr. Schaefer, Dr. Heyns, and Prof. Land

The advisory committee is in the process of being revamped, but presently consists of the above named persons. Before lunch we sat in on a meeting with the aforementioned persons, less Chief Forbush, who had to excuse himself from the meeting. (We met Chief Forbush the previous evening.) The Chiefs were reasonably representative of the population served, and discussed possible persons to whom they could extend invitations to participate in advising the fire-related programs. We encouraged them to continue to do so, and participate in the program outcomes and assessment as recommended by the IFSAC accreditation criteria.

Classroom Observation - FIRE220 Class/Other Fire Students (Nick Vaught)

After lunch, we toured "the barn" and observed students conducting search training. It was cold, windy, and downright miserable outside, but the students were clearly engaged in the training evolutions. In fact, one student was so engaged, I (Lee) thought he was one of the instructors.

Outbrief w/Morrie Walworth, Vice President for Academic Affairs, Dr. Paige Gordier, Dean of College of Arts, Letters, Social Science & Emergency Services and Dr. James Schaefer, Chair – School of Criminal Justice, Fire Science & EMS

On Wednesday afternoon, the team conducted an exit interview to discuss our findings. Present were the aforementioned. The site team discussed their overall impression of the college, program, and support. They reiterated what they viewed as broad based institutional commitment to the program. The site team recognized excellent student services, especially in the area of student counseling support by faculty, and the Learning Center / LSSU Library support. The mutual respect among students, faculty, and staff was admirable, and something I have personally not always observed during site visits. All students address the faculty by their preferred titles, and in turn all students are respectfully addressed by faculty as "Mr. [last name]" or "Ms. [last name]".

The team discussed their findings, and all seemed to be receptive to the detailed report and items discussed.

Work session Alumni Room – Walker Cisler Conference Center

After the exit interview the team continued to finalize the contents of the draft report.

The site team visit resulted in no requirements and just one recommendation. That is, that the college should continue to include the steering / advisory committee in the consultation regarding outcomes, assessment, and program expansion needs.

The findings of the site team will be taken back to the Degree Board of Governors and will be presented at the IFSAC annual conference.

Special recognition should be given to the faculty and staff that provided the team with invaluable support and information that was needed throughout the site visit

Lee Silvi, Site Team Leader

// ***signature pending*** //

Bill Klein

March 31, 2014

International Fire Service Accreditation Congress
FINAL ACTION REPORT

____ Requirement **XX** Recommendation

Name of Institution	Lake Superior State University
Degree Program involved	AAS and BS Fire Science Programs
EVALUATION AREA	**G23.3.6(d) ADVISORY COMMITTEE** The advisory committee should be involved in the process of creating program outcomes.
CONDITION NUMBER	1
CONDITION	The Steering Committee / Advisory Committee is in the process of being revamped, and the committee should continue to be involved in the process of program outcomes and review as new members are added.
Format requirements	N/A
Evidence that condition has been met should be sent to:	Lee Silvi Lsilvi@lakelandcc.edu Lakeland Community College 7700 Clocktower Dr Kirtland, Ohio 44004
By the following date	N/A. This is a recommendation only.
If evidence that condition has been met cannot be completed by due date, contact:	Lee Silvi

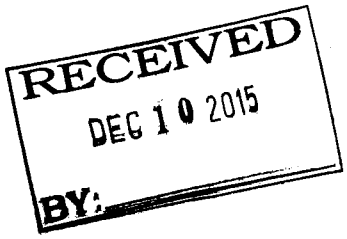
CCNE
COMMISSION ON
COLLEGIATE NURSING
EDUCATION

ONE DUPONT CIRCLE NW
SUITE 530
WASHINGTON DC 20036-1120

202-887-6791

WWW.AACN.NCHE.EDU/
CCNE-ACCREDITATION

November 19, 2015



Ronald Hutchins, MSN, RN
Dean
School of Nursing
Lake Superior State University
650 West Easterday Avenue
Sault Sainte Marie, MI 49783

Dear Mr. Hutchins:

On behalf of the Commission on Collegiate Nursing Education (CCNE), I am pleased to advise you that the CCNE Board of Commissioners acted at its meeting on October 19-22, 2015, to grant accreditation to the **baccalaureate degree program in nursing** at Lake Superior State University for 5 years, extending to December 31, 2020. The accreditation action is effective as of February 9, 2015, which is the first day of the program's recent CCNE on-site evaluation. You should plan for the next on-site evaluation to take place in the spring of 2020.

At its meeting, the Board determined that the program met all four accreditation standards. The Board additionally determined that there are compliance concerns with respect to Key Elements IV-E, IV-F and IV-H.

A copy of the accreditation team report that was sent to you earlier, along with the program's response to it, is being transmitted to the institution's chief executive officer as the Commission's official report to Lake Superior State University. We hope that both the results of the self-study process and the team report will be useful to the continued growth and development of the nursing program. A certificate of accreditation is enclosed.

In accordance with CCNE policy, if a program or institution elects to make a public disclosure of a program's accreditation status with CCNE, the program or institution must disclose that status accurately. The program or institution disclosing the information must identify the nursing program and its affiliation with CCNE. This statement must include *either* the accrediting agency's full name, address, and telephone number *or* the accrediting agency's full name and address of the website home page, which identifies CCNE's address and telephone number. For more information on CCNE's disclosure policy and to access the statements that CCNE has approved for use, as well as information on use of the CCNE accreditation seal, please visit http://www.aacn.nche.edu/ccne-accreditation/seal-policy/baccalaureate-graduate. Please ensure that the institution's website and other materials are updated to reflect this language, as appropriate.

A Compliance Report must be submitted to demonstrate the program's compliance with the following key elements:

1. Provide evidence that program outcomes demonstrate program effectiveness (Key Element IV-E). Specifically, demonstrate that program outcomes are defined by the program and define expected levels of achievement, and demonstrate that the data are analyzed to determine program effectiveness, as required by the key element.

2. Provide evidence that faculty outcomes, individually and in the aggregate, demonstrate program effectiveness; and, specifically, that actual faculty

outcomes are presented in the aggregate for the faculty as a group, analyzed, and compared to expected outcomes. (Key Element IV-F)

3. Demonstrate that data analysis is used to foster ongoing program improvement. (Key Element IV-H)

The deadline for submitting the Compliance Report to CCNE is December 1, 2016.

As is required for all accredited programs, a Continuous Improvement Progress Report (CIPR) must be submitted at the mid-point of the accreditation term. Please note that the CIPR needs to address and demonstrate the program's compliance with the CCNE standards and key elements that are in effect at the time of its submission. As a courtesy, CCNE will send a reminder letter to the chief nurse administrator approximately five months prior to the CIPR submission deadline, informing the program of the specific standards to be used and providing guidance for the preparation of the report. The deadline for submitting the CIPR to CCNE is June 1, 2018. The Report Review Committee, and then the Board of Commissioners, will review the CIPR. For more information about CIPRs and the report review process, please refer to the CCNE procedures.

As a reminder, programs are expected to continue to comply with the current CCNE standards and procedures throughout the period of accreditation. These documents are available at http://www.aacn.nche.edu/ccne-accreditation/standards-procedures-resources/baccalaureate-graduate. This includes advising CCNE in the event of a substantive change affecting the nursing program. Substantive change notifications must be submitted to CCNE no earlier than 90 days prior to implementation or occurrence of the change, but no later than 90 days after implementation or occurrence of the change. These reporting requirements are discussed further in the CCNE procedures.

Thank you for your participation in the CCNE accreditation process and your commitment to quality nursing education. The Commissioners join me in expressing our very best wishes as you continue to promote excellence in nursing education.

Sincerely,

Judith F. Karshmer, PhD, PMHCNS-BC, FAAN
Chair, Board of Commissioners

cc: President Thomas C. Pleger
CCNE Board of Commissioners
CCNE Accreditation Review Committee
CCNE Evaluation Team

COMMISSION ON
COLLEGIATE NURSING
EDUCATION

Evaluation Team Report on the Accreditation Review of the Baccalaureate Degree Program in Nursing at Lake Superior State University

Commission on Collegiate Nursing Education
On-Site Evaluation: February 9-11, 2015
Evaluation Team:

Jan Strom, PhD, RN, Team Leader
Anne Bateman, EdD, APRN, BC
Denise Seigart, PhD, RN

Serving the Public Interest
Through Quality Accreditation

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Introduction

This report presents the findings of the evaluation team from the Commission on Collegiate Nursing Education (CCNE), the accrediting body responsible for the evaluation of baccalaureate and graduate nursing programs, regarding the Bachelor of Science in Nursing (BSN) at Lake Superior State University (LSSU) School of Nursing (SON) and its compliance with CCNE's standards for accreditation. The BSN program was granted initial accreditation by the National League for Nursing in 1984. The program is being reviewed for initial CCNE accreditation.

The 115-acre LSSU campus is located at the northeast end of Michigan's Upper Peninsula in the city of Sault Sainte Marie. The city is on the United States' border with Ontario, Canada. The region is best known for the Soo Locks, one of the world's busiest canals. LSSU, with additional Michigan campuses in Escanaba, Gaylord, Iron Mountain, and Petoskey, is one of 12 state-supported four-year institutions of higher learning in Michigan. LSSU enrolls 2,500 undergraduate students and employs 115 full-time faculty and 120 staff. Established in 1946 to address the needs of returning World War II veterans and provide educational opportunities for the people of the Eastern Upper Peninsula, LSSU now offers 24 associate degree programs and 77 baccalaureate degree programs. Governed by a Board of Trustees, LSSU is authorized under Article VIII, Section 6, of the Michigan Constitution of 1963, under Act 26, Public Acts of 1969 to offer baccalaureate degrees. LSSU was last accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools (HLC) in 2011 for a period of five years.

According to the 2014-2015 university catalog, LSSU's mission "is to help students develop their full potential. We launch students on paths to rewarding careers and productive, satisfying lives. We serve the regional, state, national and global communities by contributing to the growth, dissemination, and application of knowledge." According to LSSU's strategic plan, the university has four strategic goals, including (a) cultural change to promote an institutional culture of excellence; (b) increased and improved communications, visibility, and student enrollment and retention; (c) provision of a comprehensive higher education and workforce training programs and services of superior quality that are affordable and accessible and meet individual, business, and community needs; and (d) identification of short and long-term opportunities for growth and revenue expansion. University officials and other constituents who met with the evaluation team reported that LSSU is the leading undergraduate campus in Sault Sainte Marie. LSSU holds a Carnegie classification of Bac/Diverse: Baccalaureate Colleges--Diverse Fields.

The SON opened in 1968 as a practical nursing program. In 1970, the practical degree program was closed and an associate degree in nursing program was opened. To meet the needs of associate degree-prepared nurses in the area, a baccalaureate degree completion program opened in 1974. In 1985, the associate degree program was closed and replaced with the pre-licensure baccalaureate degree program. According to the university catalog, the SON offers a BSN with two tracks: the pre-licensure program and the completion program for registered nurses (RNs). The SON does not offer master's or doctoral degree programs, nor does it offer advanced practice

registered nurse (APRN) degrees or post-graduate APRN certificates. According to the SON website, the SON's mission is "to graduate competent students who are prepared to safely provide compassionate nursing care utilizing theory and evidence-based practice." At present, 132 students are enrolled in the pre-licensure baccalaureate degree track, while 11 students are enrolled in the degree completion track. There are 12 full-time, 3 regular part-time, and 17 adjunct faculty in the SON. The BSN is approved by the Michigan Board of Nursing and is accredited by the Accreditation Commission for Education in Nursing (ACEN) through 2016.

The team was afforded full cooperation in its efforts to assess the program and to confirm the self-study document. The team would like to take this opportunity to thank the program for its hospitality and consideration during the on-site evaluation.

As part of the review, the team verified that the program afforded the opportunity for constituents to submit third-party comments directly to CCNE, in accordance with CCNE procedures. No letters were received.

Meeting of CCNE Standards

While visiting the campus in Sault Sainte Marie, Michigan, the evaluation team had an opportunity to interview school and university officials; program faculty, students, and alumni; and community representatives. The team reviewed information in the self-study document and in the resource room, as well as other materials provided at its request. In addition, the team also observed classroom and clinical activities. The following assessments were made regarding compliance with the CCNE *Standards for Accreditation of Baccalaureate and Graduate Nursing Programs* by the baccalaureate degree program in nursing at the institution.

Standard I
Program Quality: Mission and Governance

The mission, goals, and expected program outcomes are congruent with those of the parent institution, reflect professional nursing standards and guidelines, and consider the needs and expectations of the community of interest. Policies of the parent institution and nursing program clearly support the program's mission, goals, and expected outcomes. The faculty and students of the program are involved in the governance of the program and in the ongoing efforts to improve program quality.

This standard is met for the baccalaureate degree nursing program.

I-A. The mission, goals, and expected program outcomes are:

- **congruent with those of the parent institution; and**
- **consistent with relevant professional nursing standards and guidelines for the preparation of nursing professionals.**

Elaboration: The program's mission statement, goals, and expected program outcomes are written and accessible to current and prospective students, faculty, and other constituents. Program outcomes include student outcomes, faculty outcomes, and other outcomes identified by the program. A mission statement may relate to all nursing programs offered by the nursing unit or specific programs may have separate mission statements. Program goals are clearly differentiated by level when multiple degree/certificate programs exist. Student outcomes may be expressed as competencies, objectives, benchmarks, or other terminology congruent with institutional and program norms.

The program identifies the professional nursing standards and guidelines it uses. CCNE requires, as appropriate, the following professional nursing standards and guidelines:

- *The Essentials of Baccalaureate Education for Professional Nursing Practice* [American Association of Colleges of Nursing (AACN), 2008];
- *The Essentials of Master's Education in Nursing* (AACN, 2011);
- *The Essentials of Doctoral Education for Advanced Nursing Practice* (AACN, 2006); and
- *Criteria for Evaluation of Nurse Practitioner Programs* [National Task Force on Quality Nurse Practitioner Education (NTF), 2012].

A program may select additional standards and guidelines.

A program preparing students for certification incorporates professional standards and guidelines appropriate to the role/area of education.

An APRN education program (degree or certificate) prepares students for one of the four APRN roles and in at least one population focus, in accordance with the Consensus Model for APRN Regulation: Licensure, Accreditation, Certification and Education (July 2008).

Compliance Concern? Baccalaureate: No

Rationale:

The nursing program's mission is congruent with mission and vision of LSSU. The team confirmed that the program mission is written and accessible to current and prospective students, faculty, and other constituents. This was further confirmed through interviews with the LSSU provost and dean of nursing (DON) as well as through a review the university catalog and nursing student handbook available online and in the resource room.

Program goals are not articulated in the student handbook, university catalog, or on the SON's website. The DON stated that the program's goals include student completion of the program, student success on the NCLEX-RN®, and meeting the community's needs for baccalaureate-prepared nurses. Students are being prepared for the role of nurse generalist.

The team confirmed that the expected program outcomes are written and accessible to current and prospective students in the student handbook and the SON website. The expected program outcomes, which apply to both program tracks, are in direct alignment with the AACN's *The Essentials of Baccalaureate Education for Professional Nursing Practice* (*Baccalaureate Essentials*) (2008). The program outcomes also serve as the expected student learning outcomes. Through a review of randomly selected course syllabi available in the resource room, the team confirmed that student outcomes are clear and leveled across the program as course objectives. For example, the course objectives in the syllabi for NURS 213: Fundamentals, NURS 327: Adult Health I, and NURS 436: Contemporary Issues in Nursing directly align with the program outcomes and are leveled across the program.

Faculty outcomes are detailed in the LSSU faculty handbook and the "Agreement between Lake Superior State University and Lake Superior State University Faculty Association MEA-NEA, Effective August 4, 2014 through August 31, 2017" (faculty agreement), available on the university website and in the resource room.

Although the student handbook and randomly selected course syllabi do not mention the *Baccalaureate Essentials*, the self-study document provides a cross-walk table outlining the congruence between the *Baccalaureate Essentials* and the SON expected program outcomes. The team confirmed that the baccalaureate program incorporates the *Baccalaureate Essentials*. For example, course-level cross-walk tables identify how course objectives align with the *Baccalaureate Essentials*, expected program outcomes, course learning experiences, and course assignments. Through an interview with 10 faculty, the team confirmed that the faculty use the *Baccalaureate Essentials* as the program's standards.

I-B. The mission, goals, and expected student outcomes are reviewed periodically and revised, as appropriate, to reflect:
- **professional nursing standards and guidelines; and**
- **the needs and expectations of the community of interest.**

Elaboration: There is a defined process for periodic review and revision of program mission, goals, and expected student outcomes. The review process has been implemented and resultant action reflects professional nursing standards and guidelines. The community of interest is defined by the nursing unit. The needs and expectations of the community of interest are reflected in the mission, goals, and expected student outcomes. Input from the community of interest is used to foster program improvement.

Compliance Concern? Baccalaureate: No

Rationale:

The SON's systematic program evaluation plan (SPE), last updated in 2012-2013, provides a defined process for periodic review and revision of the program's mission, philosophy, program outcomes, expected student outcomes, faculty qualifications, curriculum, resources, and outcomes. The SPE is based on ACEN standards. The team confirmed a review process has been implemented and resultant action taken that reflects professional nursing standards and guidelines. For example, the outcomes committee meeting minutes from September 17, 2014, reflect that the committee considered the school's progress on ACEN Standard Six, the standard related to the SPE.

The SON defines its community of interest as its advisory board, primarily composed of representatives from affiliated clinical agencies. Students are invited as guests to the advisory board meetings. Advisory board meeting minutes, available in the resource room, demonstrate the board's consistent satisfaction with the program and input into the program. For example, the nursing advisory board meeting minutes from October 30, 2013, reflected an advisory board member's support of the SON's degree completion track because local agencies must have 80% of nursing staff baccalaureate-prepared by 2020. Through an interview with nine of the advisory board members, all of whom are alumni of LSSU and hold leadership positions in the community, the team confirmed that the community of interest's needs and expectations are reflected in the program's mission and expected student learning outcomes, making the program's graduates highly desirable for employment in the area. Board members gave specific examples of how their input had been used to improve the program. One board member, for example, described how her request was honored. She asked that students no longer shadow the staff giving injections, and instead give the injections themselves. This recommendation was honored, and students now give injections. One board member said she was "still proud to be a LSSU nursing alumni 30 years after graduation."

I-C. Expected faculty outcomes are clearly identified by the nursing unit, are written and communicated to the faculty, and are congruent with institutional expectations.

Elaboration: The nursing unit identifies expectations for faculty, whether in teaching, scholarship, service, practice, or other areas. Expected faculty outcomes are congruent with those of the parent institution.

Compliance Concern? Baccalaureate: No

Rationale:

Expected faculty outcomes for all LSSU faculty, including the nursing faculty, are clearly identified in the 2014-2017 faculty agreement and the LSSU faculty handbook available for review on the LSSU website and in the resource room. Expected faculty outcomes include student learning, advising/student support, scholarly activities, and service. Each school determines the percentage weight given to each of the four expected faculty outcomes. SON meeting minutes from August 20, 2014, reflect the SON faculty vote on the percentage weights used in faculty evaluations for each expected faculty outcome category. A review of nursing faculty

evaluations confirmed that faculty are evaluated with the expected faculty outcomes outlined in the faculty agreement and faculty handbook.

The DON confirmed that the expected nursing faculty outcomes are identical to the faculty outcomes expected of other LSSU faculty. During the team's interview with 10 nursing faculty, faculty reported that they are aware of the expected faculty outcomes as a result of receiving the faculty agreement and the LSSU faculty handbook.

I-D. Faculty and students participate in program governance.

Elaboration: Roles of the faculty and students in the governance of the program, including those involved in distance education, are clearly defined and promote participation. Nursing faculty are involved in the development, review, and revision of academic program policies.

Compliance Concern? Baccalaureate: No

Rationale:

A review of the faculty and student handbooks available online and in the resource room confirmed multiple methods for student and faculty involvement in program governance. Faculty participate in program governance through their participation in the SON organization meetings and the curriculum, student affairs, learning resources, and outcome committees. During an interview with the team, faculty reported they are part of the team that governs the program. They expressed great satisfaction with their participation in writing the self-study document, which they described as helping them better understand the program as a whole. In a meeting with seven students, the team confirmed that students have input into the program through the Lake Superior State Student Nurses Association and the association's faculty advisor. The DON reported the degree completion students have input through meetings held at the regional centers in Petoskey and Escanaba. Further steps are being taken to encourage the degree completion students to participate in various SON committees and student groups.

I-E. Documents and publications are accurate. A process is used to notify constituents about changes in documents and publications.

Elaboration: References to the program's offerings, outcomes, accreditation/approval status, academic calendar, recruitment and admission policies, grading policies, degree/certificate completion requirements, tuition, and fees are accurate. Information regarding licensure and/or certification examinations for which graduates will be eligible is accurate. For APRN education programs, transcripts or other official documentation specify the APRN role and population focus of the graduate. [1, 2]

If a program chooses to publicly disclose its CCNE accreditation status, the program uses either of the following statements:

> *"The (baccalaureate degree in nursing/master's degree in nursing/Doctor of Nursing Practice and/or post-graduate APRN certificate) at (institution) is accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791."*

"The (baccalaureate degree in nursing/master's degree in nursing/Doctor of Nursing Practice and/or post-graduate APRN certificate) at (institution) is accredited by the Commission on Collegiate Nursing Education (http://www.aacn.nche.edu/ccne-accreditation)."

[1] *Consensus Model for APRN Regulation: Licensure, Accreditation, Certification and Education* (July 2008).

[2] *Criteria for Evaluation of Nurse Practitioner Programs* (National Task Force on Quality Nurse Practitioner Education, 2012).

Compliance Concern? Baccalaureate: No

Rationale:

The team confirmed that documents and publications available for review in the resource room and online are accurate and consistent. Information located in the university catalog and the student handbook includes the program's offerings, program outcomes, course of study for pre-licensure and degree completion students, accreditation status, academic calendar, recruitment and admission requirements, transfer credit policies, grading policies, degree completion requirements, tuition, and fees. Information regarding the NCLEX-RN®, which the pre-licensure graduates will be eligible to take, is available in the student handbook. Degree completion graduates are not eligible for additional licensure; therefore, no information is provided regarding their ability to obtain a license.

I-F. Academic policies of the parent institution and the nursing program are congruent and support achievement of the mission, goals, and expected student outcomes. These policies are:
- **fair and equitable;**
- **published and accessible; and**
- **reviewed and revised as necessary to foster program improvement.**

Elaboration: Academic policies include, but are not limited to, those related to student recruitment, admission, retention, and progression. Policies are written and communicated to relevant constituencies. Policies are implemented consistently. Differences between the nursing program policies and those of the parent institution are identified and support achievement of the program's mission, goals, and expected student outcomes. A defined process exists by which policies are regularly reviewed. Policy review occurs and revisions are made as needed.

Compliance Concern? Baccalaureate: No

Rationale:

The team confirmed that academic program policies support achievement of the program's mission, goals, and student learning outcomes. Policies regarding student recruitment, admission, retention and progression are written and available in the student handbook and university website. There is congruence between the academic policies of LSSU and the SON. Where policies differ, it is in support of the program's achievement of its mission, goals, and student learning outcomes. Policy differences include a higher grading scale in nursing, a dress code policy, tobacco use, drug and alcohol screening, a code of conduct for nursing, attendance policies, and grievance policies. This was confirmed in a meeting with student support staff, including a representative

from admissions. As an example of a difference between LSSU and nursing admission criteria, admission to the degree completion track requires proof of a current Michigan or Ontario professional nursing license and transcripts from previous nursing school(s) or college(s). Students confirmed that policies related to student recruitment, admission, retention, and progression are written, fair, equitable, and implemented consistently. Students reported that they are made aware of changes to policies and procedures through announcements in class and email. The faculty reported the student affairs committee does an annual audit of the student handbook to ensure it is consistent and accurate.

Standard II
Program Quality: Institutional Commitment and Resources

The parent institution demonstrates ongoing commitment to and support for the nursing program. The institution makes resources available to enable the program to achieve its mission, goals, and expected outcomes. The faculty, as a resource of the program, enable the achievement of the mission, goals, and expected program outcomes.

This standard is met for the baccalaureate degree nursing program.

II-A. Fiscal and physical resources are sufficient to enable the program to fulfill its mission, goals, and expected outcomes. Adequacy of resources is reviewed periodically and resources are modified as needed.

Elaboration: The budget enables achievement of the program's mission, goals, and expected outcomes. The budget also supports the development, implementation, and evaluation of the program. Compensation of nursing unit personnel supports recruitment and retention of qualified faculty and staff. Physical space is sufficient and configured in ways that enable the program to achieve its mission, goals, and expected outcomes. Equipment and supplies (e.g., computing, laboratory, and teaching-learning) are sufficient to achieve the program's mission, goals, and expected outcomes.

A defined process is used for regular review of the adequacy of the program's fiscal and physical resources. Review of fiscal and physical resources occurs and improvements are made as appropriate.

Compliance Concern? Baccalaureate: No

Rationale:

Through interviews with the DON and vice president for finance, the team confirmed that the SON's financial resources are adequate to enable the achievement of the program's mission, goals, and expected outcomes. Upon request, the DON provided the team a copy of the SON budget. The SON's revenue sources include tuition, fees, state funding, and indirect cost recovery. Additionally, restricted discretionary funds are used to support specific projects and faculty development. A report available in the resource room indicated an average SON faculty compensation is below the College and University Professional Association for Human Resources (CUPA) mean annual salary. The DON reported no difficulty in hiring qualified faculty and has no plans for a salary adjustment.

The team's observations of the facilities confirmed the physical space is sufficient and configured to enable the program to achieve its mission, goals, and expected outcomes. The SON occupies 4,980 square feet that include three labs with 17 beds, storage and office space, a computer laboratory, multi-media classrooms, and other resources. There is a 2,000-square-foot nursing simulation center located within one mile of the campus. Laboratories are staffed with a half-time staff member and two senior-level work-study nursing students. Equipment and supplies for computing, the laboratory, and teaching-learning are sufficient to achieve the mission, goals, and expected outcomes. In a meeting with the team, the provost expressed his support for the development of the new simulation center on campus that will require capital funding for a new building.

II-B. Academic support services are sufficient to ensure quality and are evaluated on a regular basis to meet program and student needs.

Elaboration: Academic support services (e.g., library, technology, distance education support, research support, admission, and advising services) are adequate for students and faculty to meet program requirements and to achieve the mission, goals, and expected program outcomes. There is a defined process for regular review of the adequacy of the program's academic support services. Review of academic support services occurs and improvements are made as appropriate.

Compliance Concern? Baccalaureate: No

Rationale:

Through interviews with faculty, students and university staff, the team confirmed that the academic support services are adequate for students and faculty to achieve the program's mission, goals, and program outcomes. For example, in a meeting with the librarian and tour of the library, the team observed adequate space, current textbooks and journals, and databases specifically dedicated to nursing. Tours of the university confirmed that the facilities are spacious, comfortable and well appointed. The online resources for students and faculty are easily accessed through the LSSU library home page and Blackboard Learning System (Blackboard). Faculty and students are surveyed annually about suggestions for changes in the library holdings.

There was some evidence of a defined process for regular review of the adequacy of the SON's student academic support services. For example, a university-wide survey, the HLC-LSSU student satisfaction survey, was administered in Fall 2014 to identify strengths and weaknesses of the institution. Analysis of this data is pending. The SON and university are in the process of implementing Nuventive TracDat, a software system that supports institutions of higher learning to align planning initiatives, to review and reflect on academic and non-academic outcomes and take action to improve performance.

II-C. The chief nurse administrator:

- **is a registered nurse (RN);**
- **holds a graduate degree in nursing;**
- **holds a doctoral degree if the nursing unit offers a graduate program in nursing;**
- **is academically and experientially qualified to accomplish the mission, goals, and expected program outcomes;**
- **is vested with the administrative authority to accomplish the mission, goals, and expected program outcomes; and**
- **provides effective leadership to the nursing unit in achieving its mission, goals, and expected program outcomes.**

Elaboration: The administrative authority of the chief nurse administrator is comparable to that of chief administrators of similar units in the institution. He or she consults, as appropriate, with faculty and other communities of interest to make decisions to accomplish the mission, goals, and expected program outcomes. The chief nurse administrator is perceived by the communities of interest to be an effective leader of the nursing unit. The program provides a rationale and a plan to come into compliance if the chief nurse administrator does not hold a graduate degree in nursing and a doctoral degree (if applicable).

Compliance Concern? Baccalaureate: No

Rationale:

The DON serves as the SON's chief nurse administrator. Interviews with the provost confirmed that the DON's authority is comparable to that of chief administrators of similar units at LSSU. The DON reports directly to the provost, which is unique because the SON is not a college. In separate meetings with the DON and the provost, it was reported to the team that a college of nursing and health sciences is in development at the university level.

A review of documents in the resource room confirmed that the DON holds a Michigan RN license and a master's degree in nursing. He is currently enrolled in a doctoral degree program in educational leadership at Eastern Michigan University with an anticipated completion date of Summer 2015. The DON has been on LSSU faculty since 1997 and has served on a variety of SON and university committees. He remains actively involved in community service with the Sault Tribe of Chippewa Indians and other special health projects. Prior to the LSSU faculty appointment, the DON held positions in community and leadership nursing. The team confirmed the DON is academically and experientially qualified to accomplish the mission, goals, and expected outcomes of the program.

During separate meetings with faculty, students, and the community of interest, all expressed tremendous respect for the program leadership. Faculty commented that they are "not micromanaged" and have been provided with opportunities for involvement in all aspects of program change. Students and the community of interest readily reported that the DON is very approachable and well respected within the nursing community.

II-D. Faculty are:

- **sufficient in number to accomplish the mission, goals, and expected program outcomes;**
- **academically prepared for the areas in which they teach; and**
- **experientially prepared for the areas in which they teach.**

Elaboration: The full-time equivalency (FTE) of faculty involved in each program is clearly delineated, and the program provides to CCNE its formula for calculating FTEs. The overall faculty (whether full-time or part-time) is sufficient in number and qualifications to achieve the mission, goals, and expected program outcomes. Faculty-to-student ratios ensure adequate supervision and evaluation and meet or exceed the requirements of regulatory agencies and professional nursing standards and guidelines.

Faculty are academically prepared for the areas in which they teach. Academic preparation of faculty includes degree specialization, specialty coursework, or other preparation sufficient to address the major concepts included in courses they teach. Faculty teaching in the nursing program have a graduate degree. The program provides a rationale for the use of any faculty who do not have a graduate degree.

Faculty who are nurses hold current RN licensure. Faculty teaching in clinical/practicum courses are experienced in the clinical area of the course and maintain clinical expertise. Clinical expertise may be maintained through clinical practice or other avenues. Faculty teaching in advanced practice clinical courses meet certification and practice requirements as specified by the relevant regulatory and specialty bodies. Advanced practice nursing tracks are directly overseen by faculty who are nationally certified in that same population-focused area of practice in roles for which national certification is available.

Compliance Concern? Baccalaureate: No

Rationale:

Through a review of documents in the resource room and interviews with the DON and SON faculty, the team confirmed that faculty are academically and experientially prepared and sufficient in number to accomplish the program's mission, goals, and expected outcomes. The faculty agreement specifies that one faculty FTE is defined as a teaching load of 24 contracts hours per year. There are currently 12 full-time and 3 regular part-time faculty, for a total of 13.5 FTE faculty. Adjunct faculty hold part-time appointments and require DON and faculty approval to teach. There are 17 adjuncts available to teach as needed, although only 4 are teaching presently. Faculty-to-student ratios comply with those set by the Michigan Board of Nursing, which requires a maximum faculty-to-student ratio of 1:10 in clinical. The SON has a clinical faculty-to-student ratio of 1:6 or 1:8, enabling adequate student supervision and evaluation.

Through a review of the faculty's curricula vitae available in the resource room, the team confirmed that faculty are educationally qualified to teach in the program. Faculty teaching nursing courses are nurses who hold current RN licensure. The academic preparation of faculty includes graduate degree specialization with clinical experience to ensure they are qualified to teach specialty content. One baccalaureate degree-prepared clinical faculty member teaches clinically in the program, as allowed by the Michigan Board of Nursing. Faculty teaching in clinical courses maintain their clinical expertise though continuing education.

In an interview with the team, faculty, students, and the advisory board members reported satisfaction with the number of faculty and their qualifications. Advisory board members further reported that faculty from the program are well respected and are actively involved in the community.

II-E. Preceptors, when used by the program as an extension of faculty, are academically and experientially qualified for their role in assisting in the achievement of the mission, goals, and expected student outcomes.

Elaboration: The roles of preceptors with respect to teaching, supervision, and student evaluation are:
- *clearly defined;*
- *congruent with the mission, goals, and expected student outcomes; and*
- *congruent with relevant professional nursing standards and guidelines.*

Preceptors have the expertise to support student achievement of expected outcomes. Preceptor performance expectations are clearly communicated to preceptors and are reviewed periodically. The program ensures preceptor performance meets expectations.

Compliance Concern? Baccalaureate: No

Rationale:

The SON does not use preceptors.

II-F. The parent institution and program provide and support an environment that encourages faculty teaching, scholarship, service, and practice in keeping with the mission, goals, and expected faculty outcomes.

Elaboration: Institutional support is available to promote faculty outcomes congruent with defined expectations of the faculty role and in support of the mission, goals, and expected faculty outcomes. For example:

- *Faculty have opportunities for ongoing development in the scholarship of teaching.*
- *If scholarship is an expected faculty outcome, the institution provides resources to support faculty scholarship.*
- *If practice is an expected faculty outcome, opportunities are provided for faculty to maintain practice competence, and institutional support ensures that currency in clinical practice is maintained for faculty in roles that require it.*
- *If service is an expected faculty outcome, expected service is clearly defined and supported.*

Compliance Concern? Baccalaureate: No

Rationale:

As a result of the faculty agreement, LSSU and the SON support the expected faculty outcomes with a clear emphasis on excellence in teaching and service. Faculty scholarship is based on Boyer's Model for Scholarship, which includes teaching as a form of scholarship. LSSU provides resources and support for faculty outcomes in the form of the faculty center for learning, professional development funds, and sabbatical leaves. Further, the SON encourages faculty to pursue doctoral preparation. Two faculty have just completed their doctoral programs. In an interview with the team, faculty stated (a) they receive support to pursue professional development to maintain expertise in their areas of specialty and improve their teaching effectiveness, and (b) the DON queries faculty at the beginning of each budget cycle regarding potential faculty development opportunities. Service is an area in which the faculty pride themselves. Faculty described numerous faculty-student projects and programs that provided service to the community. The advisory board members confirmed this service during their interview with the team. Examples of faculty-student services projects were available for review in the resource room.

Standard III
Program Quality: Curriculum and Teaching-Learning Practices

The curriculum is developed in accordance with the program's mission, goals, and expected student outcomes. The curriculum reflects professional nursing standards and guidelines and the needs and expectations of the community of interest. Teaching-learning practices are congruent with expected student outcomes. The environment for teaching-learning fosters achievement of expected student outcomes.

This standard is met for the baccalaureate degree nursing program.

III-A. The curriculum is developed, implemented, and revised to reflect clear statements of expected student outcomes that are congruent with the program's mission and goals, and with the roles for which the program is preparing its graduates.

Elaboration: Curricular objectives (e.g., course, unit, and/or level objectives or competencies as identified by the program) provide clear statements of expected learning that relate to student outcomes. Expected outcomes relate to the roles for which students are being prepared.

Compliance Concern? Baccalaureate: No

Rationale:

Through a review of the documents available in the resource room, the team confirmed that the nursing curriculum was developed, implemented, and revised to facilitate the accomplishment of the expected student outcomes that are aligned with the program's mission and goals. Through a review of documents and an interview with the community of interest, the team confirmed that program graduates are being prepared as generalists, which is congruent with the program's expected student outcomes. A review of three randomly selected course syllabi available in the resource room demonstrated course-level objectives are clearly stated and directly aligned with the expected student outcomes.

Evidence exists that the faculty routinely evaluate the curriculum and make adjustments as necessary. For example, NURS 434: Nursing Research was recently moved from the senior level to the junior level based on student and faculty feedback. The faculty have also discontinued the use of Assessment Technologies Institute (ATI) examinations and have instead implemented PrepU's software program because it was thought PrepU would better assist the students in meeting the expected student learning outcomes. The faculty have also begun implementing TracDat, which will enable the faculty to track aggregate student learning outcomes and make curriculum adjustments as needed.

The curriculum for the degree completion track aligns with the curriculum for the pre-licensure track. Degree completion students often take courses with pre-licensure students; however, separate off-site courses for degree completion cohorts are offered when the number of students is adequate to support a cohort. Most of these cohorts have been offered in Petoskey and Escanaba. The faculty are exploring the offering of hybrid and online courses in order to meet the needs of degree completion students more readily and increase the number

of students within the track. Interviews with the SON faculty confirmed that the DON is responsible for managing the degree completion track and curriculum.

III-B. Curricula are developed, implemented, and revised to reflect relevant professional nursing standards and guidelines, which are clearly evident within the curriculum and within the expected student outcomes (individual and aggregate).

- **Baccalaureate program curricula incorporate *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008).**
- **Master's program curricula incorporate professional standards and guidelines as appropriate.**
  a. **All master's degree programs incorporate *The Essentials of Master's Education in Nursing* (AACN, 2011) and additional relevant professional standards and guidelines as identified by the program.**
  b. **All master's degree programs that prepare nurse practitioners incorporate *Criteria for Evaluation of Nurse Practitioner Programs* (NTF, 2012).**
- **Graduate-entry program curricula incorporate *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008) and appropriate graduate program standards and guidelines.**
- **DNP program curricula incorporate professional standards and guidelines as appropriate.**
  a. **All DNP programs incorporate *The Essentials of Doctoral Education for Advanced Nursing Practice* (AACN, 2006) and additional relevant professional standards and guidelines if identified by the program.**
  b. **All DNP programs that prepare nurse practitioners incorporate *Criteria for Evaluation of Nurse Practitioner Programs* (NTF, 2012).**
- **Post-graduate APRN certificate programs that prepare nurse practitioners incorporate *Criteria for Evaluation of Nurse Practitioner Programs* (NTF, 2012).**

Elaboration: Each degree/certificate program incorporates professional nursing standards and guidelines relevant to that program, area, role, population focus, or specialty. The program clearly demonstrates where and how content, knowledge, and skills required by identified sets of standards are incorporated into the curriculum.

APRN education programs (degree and certificate) (i.e., Clinical Nurse Specialist, Nurse Anesthesia, Nurse Midwife, and Nurse Practitioner) incorporate separate comprehensive graduate level courses to address the APRN core, defined as follows:

- *Advanced physiology/pathophysiology, including general principles that apply across the lifespan;*
- *Advanced health assessment, which includes assessment of all human systems, advanced assessment techniques, concepts and approaches; and*
- *Advanced pharmacology, which includes pharmacodynamics, pharmacokinetics, and pharmacotherapeutics of all broad categories of agents.*

Additional APRN core content specific to the role and population is integrated throughout the other role and population-focused didactic and clinical courses.

Separate courses in advanced physiology/pathophysiology, advanced health assessment, and advanced pharmacology are not required for students enrolled in post-master's DNP programs who hold current national certification as advanced practice nurses, unless the program has deemed this necessary.

Master's programs that have a direct care focus but are not APRN education programs (e.g., nursing education and Clinical Nurse Leader), incorporate graduate level content addressing the APRN core. They are not required to offer this content as three separate courses.

Compliance Concern? Baccalaureate: No

Rationale:

A review of documents available for review in the resource room confirmed that the baccalaureate curriculum was developed, implemented, and revised to meet the *Baccalaureate Essentials* standards. The team noted the *Baccalaureate Essentials* threaded throughout course syllabi, student assignments, and individual and aggregate expected student learning outcomes. Through cross-walk tables, the program demonstrated where and how the required content, knowledge, and skills are incorporated into the curriculum. Course assignments throughout the program are designed to measure achievement of the expected student learning outcomes at various levels, and are recorded in TracDat in order to collect aggregate data regarding the graduates' achievement of student learning outcomes. The alumni survey is also designed to measure achievement of program outcomes. The faculty have only recently begun to use the TracDat software in the past year, so no trending data were available.

The degree completion students are expected to achieve the same expected student learning outcomes as pre-licensure students; however, some degree completion courses are slightly different than the versions offered to pre-licensure students because of the difference in practice experience between the two groups. For example, degree completion students might have different projects/assignments than the pre-licensure students, although the expected student learning outcomes are identical. Examples of student work available in the resource room demonstrated achievement of the expected student learning outcomes. Aggregate data were also noted in TracDat regarding the collective achievement of students; however, evidence of use of these data to facilitate program change was sparse.

III-C. The curriculum is logically structured to achieve expected student outcomes.

- **Baccalaureate curricula build upon a foundation of the arts, sciences, and humanities.**
- **Master's curricula build on a foundation comparable to baccalaureate level nursing knowledge.**
- **DNP curricula build on a baccalaureate and/or master's foundation, depending on the level of entry of the student.**
- **Post-graduate APRN certificate programs build on graduate level nursing competencies and knowledge base.**

Elaboration: Baccalaureate program faculty and students articulate how knowledge from courses in the arts, sciences, and humanities is incorporated into nursing practice. Post-baccalaureate entry programs in nursing incorporate the generalist knowledge common to baccalaureate nursing education as delineated in The Essentials of Baccalaureate Education for Professional Nursing Practice (AACN, 2008) as well as advanced course work.

Graduate curricula are clearly based on a foundation comparable to a baccalaureate degree in nursing. Graduate programs delineate how students who do not have a baccalaureate degree in nursing acquire the knowledge and competencies comparable to baccalaureate education in nursing as a foundation for advanced nursing education. Accelerated programs that move students from basic nursing preparation (e.g., associate degree or diploma education) to a graduate degree demonstrate how these students acquire baccalaureate level knowledge and competencies delineated in The Essentials of Baccalaureate Education for Professional Nursing Practice (AACN, 2008), even if they do not award a baccalaureate degree in nursing in addition to the graduate degree.

DNP programs, whether post-baccalaureate or post-master's, demonstrate how students acquire doctoral-level competencies delineated in The Essentials of Doctoral Education for Advanced Nursing

Practice (AACN, 2006). The program provides a rationale for the sequence of the curriculum for each program.

Compliance Concern? Baccalaureate: No

Rationale:

The team reviewed the plans of study for pre-licensure and degree completion students. Both plans confirmed the baccalaureate curriculum is built upon a logical foundation of general education and core courses, including those in the arts, sciences, and humanities. All students, including pre-licensure and degree completion students, must have successfully completed these courses to be awarded a baccalaureate degree. Students articulated the value of these courses and how they apply to their upper-level nursing courses and practice. For example, in an interview with the team, students stated that their sociology, psychology, and communication courses enable them to be "able to work with all kinds of people."

III-D. Teaching-learning practices and environments support the achievement of expected student outcomes.

Elaboration: Teaching-learning practices and environments (classroom, clinical, laboratory, simulation, distance education) support achievement of expected individual student outcomes identified in course, unit, and/or level objectives.

Compliance Concern? Baccalaureate: No

Rationale:

Through observations of the teaching-learning practices used in classroom and clinical settings, the team confirmed that the teaching-learning practices used support the achievement of expected individual student outcomes. The environment in the classrooms, clinical sites, laboratories, simulation, and distance learning platforms are conducive to deep learning and achievement of expected individual student outcomes at the course level. Through interviews with pre-licensure and degree completion students, the team confirmed the students respect the faculty, who have supportive relationships with their students. Students spoke passionately of the "small school" feel of their university and the close relationships they develop with faculty and the DON. A wide variety of teaching practices were observed, including lecture, online, hybrid classes, standard clinical experiences, and a rich simulation program based in a strong faculty development program.

III-E. The curriculum includes planned clinical practice experiences that:

- **enable students to integrate new knowledge and demonstrate attainment of program outcomes; and**
- **are evaluated by faculty.**

Elaboration: To prepare students for a practice profession, each track in each degree program and post-graduate APRN certificate program affords students the opportunity to develop professional competencies in practice settings aligned to the educational preparation. Clinical practice experiences are provided for students in all programs, including those with distance education offerings. Clinical practice experiences involve activities that are designed to ensure students are competent to enter

nursing practice at the level indicated by the degree/certificate program. The design, implementation, and evaluation of clinical practice experiences are aligned to student and program outcomes.

Compliance Concern? Baccalaureate: No

Rationale:

Through observations of the students' clinical practice experiences in inpatient and community settings, the team confirmed that the curriculum includes planned clinical experiences that provide students the opportunity to develop professional competencies in practice settings aligned to baccalaureate preparation. Through interviews with faculty, pre-licensure students and a degree completion student, the team confirmed clinical practice experiences are provided for all students, including those completing the program through distance education. Students stated their clinical experiences are "amazing" and clinical partners and alumni agreed. The local hospital, although small, provides a surprising variety of clinical experiences for LSSU students exclusively, as no other nursing program utilizes the facility. Students also sometimes utilize clinical facilities in Canada, although this has become more difficult since the implementation of increased security measures at the border. Local employers, part of the community of interest, stated the curriculum and its clinical practice experiences ensure students are competent to enter nursing practice as baccalaureate-prepared nurses.

The community clinical opportunities are well used and the SON has developed strong relationships with multiple clinical partners. The faculty and DON have also demonstrated a strong inclination to be innovative and creative when faced with shortages in particular clinical areas. For example, pediatrics experiences have largely been moved into outpatient community settings due to a shortage of inpatient clinical opportunities. The simulation director has also worked with the faculty to develop strong pediatric and obstetric scenarios that substitute for missing inpatient clinical opportunities in these areas. In addition, the faculty and DON maintain an ongoing relationship with the local Tribal Health Center, which presents unusual opportunities for enhanced cultural experiences for LSSU nursing students. The degree completion students complete a clinical community health experience under the supervision of a community health faculty member.

III-F. The curriculum and teaching-learning practices consider the needs and expectations of the identified community of interest.

Elaboration: The curriculum and teaching-learning practices (e.g., use of distance technology, didactic activities, and simulation) are appropriate to the student population (e.g., adult learners, second language students, students in a post-graduate APRN certificate program) and consider the needs of the program-identified community of interest.

Compliance Concern? Baccalaureate: No

Rationale:

The team confirmed that the communities of interest are solicited regularly for feedback regarding their expectations relative to the program's curriculum and teaching-learning practices. Through the advisory board,

community partners, alumni, employers, and collaborating schools provide feedback on the use of distance technology, didactic activities, and simulation activities. In an interview with the team, advisory board members described the LSSU nursing graduates as "top notch" and gave three specific examples of how their expectations were considered in changes made to the curriculum and teaching-learning practices. All advisory board members present at the interview with the team were graduates of LSSU, including the chair of a collaborating Canadian school.

III-G. Individual student performance is evaluated by the faculty and reflects achievement of expected student outcomes. Evaluation policies and procedures for individual student performance are defined and consistently applied.

Elaboration: Evaluation of student performance is consistent with expected student outcomes. Grading criteria are clearly defined for each course, communicated to students, and applied consistently. Processes exist by which the evaluation of individual student performance is communicated to students. In instances where preceptors facilitate students' clinical learning experiences, faculty may seek input from preceptors regarding student performance, but ultimately faculty are responsible for evaluation of individual student outcomes. The requirement for evaluation of student clinical performance by qualified faculty applies to all students in all programs. Faculty evaluation of student clinical performance may be accomplished through a variety of mechanisms.

Compliance Concern? Baccalaureate: No

Rationale:

Through interviews with faculty and students, the team confirmed that individual student performance in the pre-licensure and degree completion tracks is evaluated by faculty. Faculty reported that they alone evaluate students' performance in the classroom and clinical settings. Students stated that grading criteria are clearly defined for each course, communicated to them in writing through course syllabi, and applied fairly and consistently by faculty. Students are aware of how to appeal an evaluation or grade, should that become necessary, although none has ever done so. A review of course syllabi available in the resource room confirmed that course syllabi clearly delineate course objectives and how student achievement of the course objectives is evaluated through examinations, assignments, projects, posters, and clinical practice experiences. A clinical evaluation tool was recently updated to promote consistent evaluation throughout the clinical courses. Particular course assignments have been designated for tracking purposes as measures of expected student learning and program objectives in order to monitor achievement trends via TracDat.

III-H. Curriculum and teaching-learning practices are evaluated at regularly scheduled intervals to foster ongoing improvement.

Elaboration: Faculty use data from faculty and student evaluation of teaching-learning practices to inform decisions that facilitate the achievement of student outcomes. Such evaluation activities may be formal or informal, formative or summative. Curriculum is regularly evaluated by faculty and other communities of interest as appropriate. Data from the evaluation of curriculum and teaching-learning practices are used to foster program improvement.

Compliance Concern? Baccalaureate: No

Rationale:

Through interviews with the DON and faculty, the team confirmed that the curriculum and teaching-learning practices are evaluated regularly to foster program improvement. Faculty and course evaluations are completed by students every semester and used to promote faculty growth and course improvement. In addition, through the faculty agreement, a new peer faculty evaluation process has recently been implemented and will also be used to rate faculty performance and promote the sharing of teaching-learning strategies. The DON uses these data for formal evaluation of faculty each year, and merit pay increases may be based on these evaluations. The SON bylaws, available in the resource room and as an appendix in the self-study document, state the SON organization is responsible for providing a systematic process of curriculum design and evaluation, while the outcomes committee is responsible for providing assessment data for the purpose of evaluation and modification of the nursing curriculum. Faculty report the use of a wide variety of data to foster curriculum and program improvement, although documentation of review of these data and feedback into program improvement were not well documented in meeting minutes. This can be partially be explained by the newness of several evaluation systems the faculty are now using, including TracDat and the new faculty evaluation system implemented with the recently approved faculty agreement. The SPE requires faculty to regularly evaluate the curriculum using data from faculty and student evaluation of teaching-learning. Through a review of committee meeting minutes available in the resource room, the team noted a transition to the CCNE standards for evaluation purposes.

Standard IV
Program Effectiveness: Assessment and Achievement of Program Outcomes

The program is effective in fulfilling its mission and goals as evidenced by achieving expected program outcomes. Program outcomes include student outcomes, faculty outcomes, and other outcomes identified by the program. Data on program effectiveness are used to foster ongoing program improvement.

This standard is met for the baccalaureate degree nursing program.

IV-A. A systematic process is used to determine program effectiveness.

Elaboration: The program uses a systematic process to obtain relevant data to determine program effectiveness. The process:

- *is written, ongoing, and exists to determine achievement of program outcomes;*
- *is comprehensive (i.e., includes completion, licensure, certification, and employment rates, as required by the U.S. Department of Education; and other program outcomes);*
- *identifies which quantitative and/or qualitative data are collected to assess achievement of the program outcomes;*
- *includes timelines for collection, review of expected and actual outcomes, and analysis; and*
- *is periodically reviewed and revised as appropriate.*

Compliance Concern? Baccalaureate: No

Rationale:

The team confirmed the SON's SPE provides a structure for determining the program's effectiveness. The SPE is written and ongoing; includes completion, licensure, certification, and employment rates; identifies which quantitative and/or qualitative data are collected; and includes timelines for collection, review of expected and actual outcomes, and methods for data analyses. The SPE is reviewed and updated regularly, with the most recent review completed in 2012-2013. The faculty are now in the process of transitioning the SPE from ACEN standards to CCNE standards. Expected outcomes are also identified in TracDat and an analysis of the available data has been conducted, as noted in the TracDat report. While faculty reported analysis of the data, evidence of this in meeting minutes was sparse.

IV-B. Program completion rates demonstrate program effectiveness.

Elaboration: The program demonstrates achievement of required program outcomes regarding completion. For each degree program (baccalaureate, master's, and DNP) and post-graduate APRN certificate program:

- *The completion rate for each of the three most recent calendar years is provided.*
- *The program specifies the entry point and defines the time period to completion.*
- *The program describes the formula it uses to calculate the completion rate.*
- *The completion rate for the most recent calendar year is 70% or higher. However, if the completion rate for the most recent calendar year is less than 70%, (1) the completion rate is 70% or higher when the annual completion rates for the three most recent calendar years are averaged or (2) the completion rate is 70% or higher when excluding students who have identified factors such as family obligations, relocation, financial barriers, and decisions to change major or to transfer to another institution of higher education.*

A program with a completion rate less than 70% for the most recent calendar year provides a written explanation/analysis with documentation for the variance.

This key element is not applicable to a new degree or certificate program that does not yet have individuals who have completed the program.

Compliance Concern? Baccalaureate: No

Rationale:

In an interview with the DON, the team verified that the program specifies the entry point as the first required nursing course in the first semester of students' sophomore year and defines the time period to degree completion as three years. The program calculates the completion rate as the number of students who started the program at the same time and completed the program within 150% of three years, divided by the number of those students who graduate. A review of the documents available in the resource room confirmed that the completion rates for the pre-licensure and degree completion tracks for the past three years were above 70%.

IV-C. Licensure and certification pass rates demonstrate program effectiveness.

Elaboration: The pre-licensure program demonstrates achievement of required program outcomes regarding licensure.

- *The NCLEX-RN® pass rate for each campus/site and track is provided for each of the three most recent calendar years.*
- *The NCLEX-RN® pass rate for each campus/site and track is 80% or higher for first-time takers for the most recent calendar year. However, if the NCLEX-RN® pass rate for any campus/site and track is less than 80% for first-time takers for the most recent calendar year, (1) the pass rate for that campus/site or track is 80% or higher for all takers (first-time and repeat) for the most recent calendar year, (2) the pass rate for that campus/site or track is 80% or higher for first-time takers when the annual pass rates for the three most recent calendar years are averaged, or (3) the pass rate for that campus/site or track is 80% or higher for all takers (first-time and repeat) when the annual pass rates for the three most recent calendar years are averaged.*

A campus/site or track with an NCLEX-RN® pass rate of less than 80% for first-time takers for the most recent calendar year provides a written explanation/analysis with documentation for the variance and a plan to meet the 80% NCLEX-RN® pass rate for first-time takers. The explanation may include trend data, information about numbers of test takers, data relative to specific campuses/sites or tracks, and data on repeat takers.

The graduate program demonstrates achievement of required program outcomes regarding certification. Certification results are obtained and reported in the aggregate for those graduates taking each examination, even when national certification is not required to practice in a particular state.

- *Data are provided regarding the number of graduates and the number of graduates taking each certification examination.*
- *The certification pass rate for each examination for which the program prepares graduates is provided for each of the three most recent calendar years.*
- *The certification pass rate for each examination is 80% or higher for first-time takers for the most recent calendar year. However, if the pass rate for any certification examination is less than 80% for first-time takers for the most recent calendar year, (1) the pass rate for that certification examination is 80% or higher for all takers (first-time and repeat) for the most recent calendar year, (2) the pass rate for that certification examination is 80% or higher for first-time takers when the annual pass rates for the three most recent calendar years are averaged, or (3) the pass rate for that certification examination is 80% or higher for all takers (first-time and repeat) when the annual pass rates for the three most recent calendar years are averaged.*

A program with a pass rate of less than 80% for any certification examination for the most recent calendar year provides a written explanation/analysis for the variance and a plan to meet the 80% certification pass rate for first-time takers. The explanation may include trend data, information about numbers of test takers, and data on repeat takers.

This key element is not applicable to a new degree or certificate program that does not yet have individuals who have taken licensure or certification examinations.

Compliance Concern? Baccalaureate: No

Rationale:

The team reviewed the SON's NCLEX-RN® pass rate for each of the three most recent calendar years. The NCLEX-RN® pass rate was 80% or higher for first-time takers for every year except the most recent year when it dropped to 78.8%. However, the SON's pass rate is 100% for all takers (first-time and repeat) for the most recent calendar year, 91% for first-time takers when the annual pass rates for the three most recent calendar years are averaged, and 100% for all takers (first-time and repeat) when the annual pass rates for the three most recent calendar years are averaged.

In an interview with the team, the DON provided an explanation for the variance and a plan to meet the 80% NCLEX-RN® pass rate for first-time takers. This plan is also available in the self-study document. The explanation for the pass rate below 80% includes data relative to repeat takers, including problems with over-confidence as a result of how PrepU was implemented in NURS 436: Nursing Issues. Changes to NURS 436 have been made, including how PrepU is implemented and the addition of new NCLEX-RN® resources. The December 2014 graduates were the first to experience these changes; data on their NCLEX-RN® pass rates are not yet available.

IV-D. Employment rates demonstrate program effectiveness.

Elaboration: The program demonstrates achievement of required outcomes regarding employment rates.

- *The employment rate is collected separately for each degree program (baccalaureate, master's, and DNP) and post-graduate APRN certificate program.*
- *Data are collected within 12 months of program completion. For example, employment data may be collected at the time of program completion or at any time within 12 months of program completion.*
- *The employment rate is 70% or higher. However, if the employment rate is less than 70%, the employment rate is 70% or higher when excluding graduates who have elected not to be employed.*

Any program with an employment rate less than 70% provides a written explanation/analysis with documentation for the variance.
This key element is not applicable to a new degree or certificate program that does not yet have individuals who have completed the program.

Compliance Concern? Baccalaureate: No

Rationale:

The team confirmed through interviews with the DON that program graduates are easily employed, although there have been issues with obtaining accurate employment data. Data sources include social media postings and emails from graduates. Surveys have been sent to students at six months and one year following graduation and two sets of survey results were available for review in the resource room. In the 2012 survey, of the 27 students reporting, 90% reported obtaining employment within six months of graduation and 95% reported obtaining employment within 12 months. The advisory board meeting minutes from October 29, 2014, available for review in the resource room report the same findings. It was also noted by the advisory board members that the local healthcare facilities depend heavily on the LSSU graduates to staff their facilities, and that they would be in a "world of hurt" should the program stop producing nursing graduates.

IV-E. Program outcomes demonstrate program effectiveness.

Elaboration: The program demonstrates achievement of outcomes other than those related to completion rates (Key Element IV-B), licensure and certification pass rates (Key Element IV-C), and employment rates (Key Element IV-D); and those related to faculty (Key Element IV-F).

Program outcomes are defined by the program and incorporate expected levels of achievement. Program outcomes are appropriate and relevant to the degree and certificate programs offered and may include (but are not limited to) student learning outcomes; student and alumni achievement; and student, alumni, and employer satisfaction data.

Analysis of the data demonstrates that, in the aggregate, the program is achieving its outcomes. Any program with outcomes lower than expected provides a written explanation/analysis for the variance.

Compliance Concern? Baccalaureate: No

Rationale:

In interviews with the DON and program faculty, the team confirmed that the program's effectiveness is determined by its attainment of the expected program outcomes. The expected program outcomes align directly with the nine *Baccalaureate Essentials*. Using the TracDat system, faculty track assignments for several courses that measure the student learning outcomes, the start date of tracking, the assessment method, the target or threshold to be met, the findings, a determination of goal achievement, and any action to be taken and follow-up steps. In documents available for review in the resource room, the team confirmed the course assessment data are presented by the expected program outcomes in the "course outcome assessment related to program outcomes" document for the pre-licensure track. No similar document was available for the degree completion track. Course assessment data, presented according to the expected program outcomes, are aggregated in the TracDat software. Some informal analysis of the data was evident, but documentation of use of these results is sparse. According the DON, LSSU has recently implemented the TracDat system, which has greatly improved the SON's ability to collect assessment data. The SON plans to use the assessment data in the aggregate for analysis and decision making purposes in a more structured way in the future.

In two end-of-program surveys, one conducted in 2012, graduates were asked to rate the extent to which the program enabled them to achieve expected program outcomes. The data were presented with bar graphs; however, no analysis of the data was evident. A visual inspection of the bar graphs indicated the graduates consistently rated their achievement of the program objectives as "to a very great extent" or "to a great extent."

IV-F. Faculty outcomes, individually and in the aggregate, demonstrate program effectiveness.

Elaboration: The program demonstrates achievement of expected faculty outcomes. Expected faculty outcomes:

- *are identified for the faculty as a group;*
- *incorporate expected levels of achievement;*
- *reflect expectations of faculty in their roles and evaluation of faculty performance;*
- *are consistent with and contribute to achievement of the program's mission and goals; and*
- *are congruent with institution and program expectations.*

Actual faculty outcomes are presented in the aggregate for the faculty as a group, analyzed, and compared to expected outcomes.

Compliance Concern? Baccalaureate: Yes

Rationale:

Through a review of faculty files and an interview with the DON, the team confirmed that the faculty are evaluated annually, most recently using the expected faculty outcomes identified in the 2014-2017 faculty agreement. Faculty receive from the DON categorical ratings for each expected faculty outcome, including fostering student learning, advising/student support, scholarly activities, and service. Possible ratings include satisfactory, developing proficiency, and unsatisfactory. The final rating is satisfactory or unsatisfactory. Prior to this agreement, evaluation data were qualitative in nature.

The team reviewed a random selection of faculty evaluations. Randomly selected faculty evaluations demonstrated selected faculty are meeting the expected faculty outcomes at the expected level of achievement. Actual faculty outcomes were not presented in the aggregate for the faculty as a group, and thus were not analyzed and compared to expected outcomes. The DON reported that the new evaluation process will enable aggregation and analysis of faculty outcomes that can be compared to expected outcomes.

IV-G. The program defines and reviews formal complaints according to established policies.

Elaboration: The program defines what constitutes a formal complaint and maintains a record of formal complaints received. The program's definition of formal complaints includes, at a minimum, student complaints. The program's definition of formal complaints and the procedures for filing a complaint are communicated to relevant constituencies.

Compliance Concern? Baccalaureate: No

Rationale:

The LSSU nursing program faculty are refining their definition of formal complaints. A formal appeal or complaint process is documented in the student handbook and university catalog. The provost stated that the SON has one of the more clearly delineated formal appeals processes, and he has dealt with several over the preceding years, including a few student dismissals (for academic failure or unsafe conduct) and subsequent lawsuits, which were resolved favorably for the institution. The DON stated that most complaints are handled at the level of the faculty member or at his level and rarely reach the level of a written formal complaint. Students agreed that if that they had a problem or complaint, the faculty are very approachable and would help them resolve the problem or take them to someone who could. They recounted a recent situation in which they felt uncomfortable in a particular clinical setting due to perceived client neglect. They presented their concerns to the faculty member and the DON, and that particular clinical facility was removed from their docket of experiences.

IV-H. Data analysis is used to foster ongoing program improvement.

Elaboration: The program uses outcome data for improvement. Data regarding completion, licensure, certification, and employment rates; other program outcomes; and formal complaints are used as indicated to foster program improvement.

- *Data regarding actual outcomes are compared to expected outcomes.*
- *Discrepancies between actual and expected outcomes inform areas for improvement.*
- *Changes to the program to foster improvement and achievement of program outcomes are deliberate, ongoing, and analyzed for effectiveness.*
- *Faculty are engaged in the program improvement process.*

Compliance Concern? Baccalaureate: Yes

Rationale:

Through review of emails and interviews with students, faculty, and administrators, the team confirmed that the program has made changes based on feedback for purposes of meeting the needs of various stakeholders. Employment rates and expected program outcome data have not been consistently aggregated or compared to established benchmarks. While a systematic process exists for identifying curriculum outcomes, evidence of use of the data for program improvement was scarce. The DON, in an interview with the team, stated the faculty are collecting and aggregating data for measurement of program outcomes, but have not consistently documented the improvement process in meeting minutes and program reports, as was apparent to the team. The DON reported that this is an area that is currently under development.

Response to Commission on Collegiate Nursing Education

The evaluation team report has been received and distributed to the Lake Superior State University (LSSU) School of Nursing faculty and the LSSU administration. We appreciated the positive review of our program as well as the constructive recommendations made by the evaluation team. We have already begun to address issues that were raised at the exit report and written in the team report.

Progress of recommended actions and concerns

Section 1-A. Documentation of the use of the *Baccalaureate Essentials*: The program outcomes found in the Student Handbook have been re-labeled as "Baccalaureate Essentials" and cited.

Section IV-C. Remediation regarding the drop in first time pass rates. Changes were made in Fall 2014 in the NURS436 regarding NCLEX prep. At the time of the team visit, no students from the December cohort had taken NCLEX-RN. We are happy to report that we currently have a 100% pass rate for this cohort, with one student remaining to test.

Section IV-F. Aggregate faculty evaluation data. Per the new faculty contract, data should be available in August 2015 that will enable aggregate reporting of faculty evaluations. The SON outcomes committee has been tasked to develop recommendations regarding dispersal of information and will have the responsibility of making recommendation to the school for any necessary group enhancement or remediation activities. While decisions have been made informally related to the need for specific areas for faculty improvement, i.e. the simulation teaching workshop, the aggregated data should provide additional rationale for the development of activities to enhance faculty development.

Section IV-H. Documentation related to data analysis for ongoing program improvement must be improved. Templates for documentation of meeting minutes will be modified to promote tracking of recommended changes. A new template for the School of Nursing general meeting has been posted in Dropbox™ for faculty to attach support documents prior to the general meetings and a section has been added as the second agenda item to review the status of all recommendations made at the previous meeting. Expanded use of online surveys and public dissemination of survey results will be made to improve content and transparency of program outcome data. The SON outcomes committee chairperson also notes that they have developed a data grid, to use in conjunction with their minutes documentation template, which should promote documentation collection and program tracking.

We are looking forward to our continued association with CCNE.

Sincerely,

Ron Hutchins, MSN, RN, CNE: Dean: College of Nursing and Health Science, Lake Superior State University.