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**ENVS 806.3**  
**Field skills in Environment  
and Sustainability**



**MASTERS IN  
WATER SECURITY**



**UNIVERSITY OF  
SASKATCHEWAN**

School of Environment and Sustainability  
2019-2020 TERM 1

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Course Coordinator:	Y. Li Beijing Normal University <a href="mailto:yanping.li@usask.ca">yanping.li@usask.ca</a>
Course notes:	See course website <a href="http://bblearn.usask.ca">http://bblearn.usask.ca</a>
Assessment:	[Assignments 80%] [Project 20%]
Prerequisites:	Registration in the MWS Program

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### **Calendar description**

This is a core course for the MWS program, which exposes students to field methods in water security related subjects, including hydrology, environmental science, water resources management, water and communities, and water and health. The course learning objectives include fundamentals of hydrology, fundamentals of social engagement, field skills in hydrology, and data collection and management.

### **Learning Outcomes**

- Introduce concepts of water science to the students, including the fields of hydrology, climate, water quality, hydrogeology, ecohydrology and socio-hydrology.
- Introduce students to water resources management challenges faced by urban, rural and first nation communities in the Canadian prairies
- Provide future water managers with an appreciation of how data are collected by researchers and technicians, and the uncertainties inherent in all environmental data.
- Provide the students with an overall understanding of the scope of Masters in Water Security Program.

### **Detailed course subject description**

This is a core course for the MWS program, which exposes students to field methods in water security related subjects, including hydrology, environmental science, water resources management, water and communities, and water and health. The course learning objectives include fundamentals of hydrology, fundamentals of social engagement, field skills in hydrology, and data collection and management.

There are two components to the course: the first comprises six modules in the first week; the second comprises field module, which will be flexibly scheduled.

## Modules

In any given year, six of the following activities will be undertaken (depending on availability) and four will be assessed.

- 1) **Practices of studying human beings** – We will explain basic approaches to social science research, key ethical considerations when dealing with human subjects, and the importance of linking research questions and objectives to empirical questions in the field
- 2) **Wetland assessment** – wetland classification; water quality parameters, vegetation wetland buffers, aquatic invertebrate community.
- 3) **Water Security** – Students will learn about floods and droughts, drainage issues, water treatment and distribution issues, and water governance.
- 4) **Hydrological science** – Large scale laboratory experiments to explore hydrological processes.
- 5) **Water survey network** – Understanding stream flow surveying.
- 8) **Rural water supply challenges** – Learn about water supply challenges.

## Readings\* and Course Materials

Instructors will provide necessary printed reading materials for students to use during the course which will also be available through [Blackboard](#) (PAWS)

## Detailed assessment of students

This 3 Credit Unit Course is assessed as follows:

Assignment	Due date	Mark
Module assignments (4 x 12.5%)	TBA	50%
Data analysis report	TBA	30%
Term project	TBA	20%

**Module assignments:** These will be drawn from exercises conducted during the modules completed in the classroom and field. Four out of six of the modules will be assessed. Assessments for each module activities will be prepared and graded by the instructor coordinating that module according to their disciplinary expertise (see list of instructors above). Assignments will be based on 1) successful execution and accuracy of techniques used and/or a written assignment or quiz. Typically these will be completed individually by the end of each module.

**Data analysis report:** Data will be collected from the field sites, and historical datasets will also be available. The students will undertake a data analysis report, where they tackle a chosen question and use the data to describe how the processes work. Example questions include: how does evapotranspiration depend on precipitation; what is the seasonal pattern of soil moisture; what is the relative importance of snow and rain; how long are the soils frozen and to what depth? This report will require the students to collect, clean and analyze hydrological observations, using MATLAB.

**Term project: An assessment of the anticipated consequences of wetland drainage.**

**Objective**

The objective of this term project is to synthesize and apply the skills and knowledge that you have acquired from your Term 1 classes. You must demonstrate understanding and apply techniques from each class:

**Assessment**

The project will be undertaken and assessed in teams, with a collectively agreed upon assignment of duties.

A single report (pdf file) is to be submitted electronically to Yanping Li. The report should contain the following sections, with the mark breakdown provided

Item	Mark
Cover sheet: Title and team members	NA
Executive summary (1 page max)	15%
Table of contents	NA
Assignment of duties	5%
Description of the problem	10%
Data analysis and interpretation	20%
Modelling	20%
Synthesis	10%
Conclusions and recommendations	10%
Peer evaluation :	10%

The peer evaluation is completed individually, and submitted separately from the report. In the peer evaluation you must provide an assessment of the contribution of each of the other members of your team and a mark out of 10 for their performance. This will be confidential.

## **School and University policy statements**

### **1. Grading System Description**

SENS uses the following grading system as adopted by the College of Graduate Studies and Research:

#### 90-100 Exceptional

A superior performance with consistent strong evidence of

- a comprehensive, incisive grasp of subject matter;
- an ability to make insightful, critical evaluation of information;
- an exceptional capacity for original, creative and/or logical thinking;
- an exceptional ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently;
- an exceptional ability to analyze and solve difficult problems related to subject matter.

#### 80-89 Very Good to Excellent

A very good to excellent performance with strong evidence of

- a comprehensive grasp of subject matter;
- an ability to make sound critical evaluation of information;
- a very good to excellent capacity for original, creative and/or logical thinking;
- a very good to excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently;
- a very good to excellent ability to analyze and solve difficult problems related to subject matter.

#### 70-79 Satisfactory to Good

A satisfactory to good performance with evidence of

- a substantial knowledge of subject matter;
- a satisfactory to good understanding of the relevant issues and satisfactory to good familiarity with the relevant literature and technology;
- a satisfactory to good capacity for logical thinking;
- some capacity for original and creative thinking;
- a satisfactory to good ability to organize, to analyze, and to examine the subject matter in a critical and constructive manner;
- a satisfactory to good ability to analyze and solve moderately difficult problems.

#### 60-69 Poor

A generally weak performance, but with some evidence of

- a basic grasp of the subject matter;
- some understanding of the basic issues;
- some familiarity with the relevant literature and techniques;
- some ability to develop solutions to moderately difficult problems related to the subject matter;
- some ability to examine the material in a critical and analytical manner.

#### <60 Failure

An unacceptable performance.

## **2. Midterm and Final Examination Scheduling**

Midterm and final examinations must be written on the date scheduled.

Final examinations may be scheduled at any time during the examination period; students should therefore avoid making prior travel, employment, or other commitments for this period. If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam may be given.

Students are encouraged to review all examination policies and procedures:

<http://students.usask.ca/academics/exams.php>

## **3. Assessment Issues and Grade Disputes**

A student shall be permitted to see any examination unless otherwise stated at the beginning of the course. Students dissatisfied with the assessment of their work in any aspect of course work, including midterm or final examination should consult the University policy '*Student Appeals or Evaluation, Grading and Academic Standing*' found at the Office of the University Secretary:

<http://policies.usask.ca/policies/student-affairs-and-activities/student-appeals.php>

## **4. Examinations with Disability Services for Students (DSS)**

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Disability Services for Students (DSS) if they have not already done so. Students who suspect they may have disabilities should contact DSS for advice and referrals. In order to access DSS programs and supports, students must follow DSS policy and procedures. For more information, check <http://www.students.usask.ca/disability/>, or contact DSS at 966-7273 or [dss@usask.ca](mailto:dss@usask.ca).

Students registered with DSS may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through DSS by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by DSS.

## **5. Academic Honesty**

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<http://www.usask.ca/secretariat/student-conduct-appeals/>)

For more information on what academic integrity means for students see the Academic Integrity Awareness site at: <http://www.usask.ca/integrity/index.php>

## **6. Recording**

The syllabus must include a notice of whether the instructor intends to record lectures and whether students are permitted to record lectures.

# Academic Integrity Checklist

Honesty and integrity are expected of every student at the University of Saskatchewan. There are many forms of academic misconduct; perhaps the most common is plagiarism. According to the University of Saskatchewan Guidelines for Academic Conduct:

*“Plagiarism is the theft of the intellectual creation of another person without proper attribution. It is the use of someone else’s words or ideas or data without proper documentation or acknowledgment. Quotations must be clearly marked, and sources of information, ideas, or opinions of others must be clearly indicated in all written work. This applies to paraphrased ideas as well as to direct quotations. A student must acknowledge and fairly recognize any contributions made to their personal research and scholarly work by others, including other students.”*

There are many resources on campus to assist you with proper citation and paraphrasing.

- For guidance on when and how to quote from other documents and how to properly paraphrase information in other documents, see <http://library.usask.ca/howto/honesty.php>.
- To learn about different styles of citation and how to properly cite a variety of different sources including statistics, archival materials, maps, legal documents and government reports, see <http://libguides.usask.ca/citation>.

When in doubt about a citation requirement or your approach to paraphrasing, ask your librarian or your course instructor or your academic supervisor for assistance.

## **Before you submit any written work, review it against the following checklist:<sup>1</sup>**

- ⊗ I have acknowledged the use of all ideas with accurate citations.
- ⊗ I have used the words of another author, instructor, information source, etc., and I have properly acknowledged this and used proper citation.
- ⊗ In paraphrasing the work of others, I have put the idea into my own words and did not just change some words or rearrange the sentence structure.
- ⊗ I have checked my work against my notes to be sure that I have correctly referenced all quotes or ideas.
- ⊗ When using direct quotations I have used quotation marks (or other means to clearly identify the quoted text) and provided full citations.
- ⊗ Apart from material that is a direct quotation, everything else in the work is presented in my own words.
- ⊗ When paraphrasing the work of others I have acknowledged the source or the central idea.
- ⊗ I have checked all citations for accuracy (e.g. page numbers, journal volume, dates, web page addresses).
- ⊗ I have used a recognized reference style (i.e. APA, MLA, Chicago etc.) consistently throughout my work.
- ⊗ My list of references/ bibliography includes all of the sources used to complete the work.
- ⊗ I have accurately and completely described any data or evidence I have collected or used.
- ⊗ I fully understand all of the content (e.g., terms, concepts, theories, data, equations, ideas) of the work that I am submitting.
- ⊗ The content of the work has not been shared with another student, unless permitted by the instructor.
- ⊗ The content of the work reflects wholly my own intellectual contribution or analysis and not that of another student(s), unless the instructor approved the submission of group or collaborative work.
- ⊗ If another person proofread my work it was for the sole purpose of indicating areas of concern, which I then corrected myself.
- ⊗ This work has not been submitted, whole or in part, for credit in another course or at another institution, without the permission of the current course instructor(s).
- ⊗ I understand the University of Saskatchewan’s policy and expectations concerning academic honesty and the consequences of plagiarism or other forms of academic misconduct.

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<sup>1</sup> Compiled based on York University ([http://www.yorku.ca/tutorial/academic\\_integrity/acadintecheklist.html](http://www.yorku.ca/tutorial/academic_integrity/acadintecheklist.html)), Curtin University (<http://academicintegrity.curtin.edu.au/global/checklist.cfm>), University of Toronto (<http://www.utoronto.ca/academicintegrity/resourcesforstudents.html>), and Skidmore College (<http://cms.skidmore.edu/advising/integrity/checklist.cfm>) checklists for academic integrity.