

February 2020

Course Coordinator:	Karl-Erich Lindenschmidt, Room 1018 National Hydrology Research Centre, karl-erich.lindenschmidt@usask.ca , 306-966-6174		
Course Schedule:	weekdays 8:30 – 12:30, 17 – 28 February 2020		
Class location:	BNU		
Assessment:	Assignments	70%	
	Modelling exercise	30%	
Prerequisites:	Undergraduate degree in natural sciences or engineering, or special permission from the instructors		
Enrolment:	Capped at 15		

Calendar description

This course will teach students advanced concepts in hydrology. It will examine physical processes of water movement through natural and anthropogenically altered catchments. These concepts will be reinforced by a computer modelling exercise to increase understanding on how these concepts can be applied to ultimately hydrological studies for river-basin water management.

Learning Outcomes

Upon completion of the course, students will have attained the:

- understanding on the physical processes of the movement of water in river basins
- skills needed to work as river basin water managers

Course Schedule

<i>Date</i>	<i>Topic</i>	<i>Assignment (handed out)</i>	<i>% of total grade</i>
17-Feb	Atmospheric subsystem	precipitation	10
18-Feb	Evaporation/ Evapotranspiration	Potential/actual evaporation	10
19-Feb	Infiltration & soil moisture	infiltration	10
20-Feb	Groundwater	Flowlines & pump test	10
21-Feb	Water balance & basin morphometry	Water balance	10
24-Feb	Streamflow and floods	Unit hydrograph	10
25-Feb	Drought & water supply	Markov-chain drought prediction	10

26-Feb	DEM generation	Hydrological modelling setup and hydrograph simulation	30
27-Feb	Hydrological modelling		
28-Feb	Hydrological modelling		

Readings

The following textbook will establish the basis for this course:

Thompson, S.A. (1999) Hydrology for Water Management. CRC Press, London.

eBook ISBN 9780203751435 <https://doi-org.cyber.usask.ca/10.1201/9780203751435>

Assessment

Assignments

All assignments must be completed to pass the course. Each assignment will be due the following day, after they are handed out. Late submission of assignments will be penalized at 5% per day.

All assignments are worth 70% of the course grade. Assignments will be graded by the instructor. Detailed guidance on the assignment topics will be provided by the instructor via a handout. Each assignment will consist of 1 to 3 analytical questions.

Modelling exercise

Tutorials will be stepped through in class to familiarise the student with the hydrological modelling process. Data for a river basin will then be provided for which the student will construct a digital elevation model (DEM) and set up and run a hydrological model for that basin. A report based on questions on the modelling will be due two days after the course is complete. The report is worth 30% of the final grade.

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://www.usask.ca/calendar/exams&grades/examregs/>

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://www.usask.ca/university_secretary/policies/student/policy-on-student-appeals-of-evaluation,-grading-and-academic-standing.php).

4. 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. 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.

4. University Learning Centre (ULC)

The ULC offers academic support to UofS students, including: workshops, writing help, math help, community service-learning, learning communities, study skills support, technology help and Peer Mentor Programs. More information can be found at <http://www.usask.ca/ulc/>

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 (http://www.usask.ca/university_secretary/honesty/StudentAcademicMisconduct.pdf) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (http://www.usask.ca/university_secretary/honesty/StudentNon-AcademicMisconduct2012.pdf)

For more information on what academic integrity means for students see the Student Conduct & Appeals section of the University Secretary Website at: http://www.usask.ca/university_secretary/pdf/dishonesty_info_sheet.pdf



School of Environment
and Sustainability

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:¹

- 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.

¹ Compiled based on York University (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.