Course Outline

ENVIRONMENTAL TECHNOLOGY

ENVT 163
WATER QUALITY
Winter 2014

3 CREDITS
2 hours lecture, 3 hours laboratory per week

INSTRUCTOR: Dr. Blaine Legaree
INSTRUCTOR: Dr. Blaine Legaree

PHONE NUMBER: (780) 792-5616

E-MAIL: blaine.legaree@keyano.ca

OFFICE NUMBER: S209D

OFFICE HOURS: Mondays 12:00 – 12:50 PM; 2:00 – 2:50 PM
Tuesdays 12:00 – 1:50 PM
Thursdays 12:00 – 12:50 PM

HOURS OF INSTRUCTION:
Lectures: Wednesdays 11:00AM –12:50 PM  Room 233
Laboratory: Tuesdays 2:00 – 4:50 PM  Room S114

COURSE DESCRIPTION:
This course provides an overview of water quality protection and pollution control of ground and surface water. Treatment of drinking water and municipal waste water, water quality guidelines for drinking water and surface water, pathogens, oxygen levels and nutrient loading, properties of water, related chemistry and terminology, ecology of lentic systems, turnover, thermal stratification, and hydrology of the northern river basin are discussed.

PRE-REQUISITE(S): CHEM 101 and EAS 100

COURSE OUTCOMES:
Upon successful completion of this course, the student will be able to:
1. Demonstrate an understanding of water chemistry, biology and fluid dynamics through laboratory and field exercises, assignments and tests.
2. Discuss processes used in drinking water and wastewater treatment.
3. Examine environmental issues related to water quality protection and pollution control.
4. Discuss the challenges of water treatment and processing faced by industry and society.
5. Create scientific lab reports that discuss and analyze laboratory data.

TEXTBOOK:

ADDITIONAL RESOURCES:
MOODLE: This course is supported online through Moodle (http://ilearn.keyano.ca). The course syllabus, lecture notes*, study questions, weblinks, PowerPoints and other electronic resources will be made available to you on Moodle.

* It is important that you download or print the lecture notes before coming to class.
TOPICS TO BE COVERED:

Please Note: This course outline may be modified to facilitate unforeseen time constraints. Date and time allotted to each topic is subject to change.

<table>
<thead>
<tr>
<th>Lecture Topic</th>
<th>Text Reference</th>
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<tbody>
<tr>
<td>1. Introduction – Water Properties</td>
<td>Ch. 1, 3</td>
</tr>
<tr>
<td>2. Water Chemistry</td>
<td>4.1-4.3</td>
</tr>
<tr>
<td>3. Water Biology</td>
<td>1.2-1.3, 4.4</td>
</tr>
<tr>
<td>4. Hydraulics and Hydrology</td>
<td>2, 3</td>
</tr>
<tr>
<td>5. Water Pollution &amp; Water Quality Standards</td>
<td>5, 6.1</td>
</tr>
<tr>
<td>6. Water Distribution Systems</td>
<td>7</td>
</tr>
<tr>
<td>7. Water Processing</td>
<td>6</td>
</tr>
<tr>
<td>8. Wastewater: Characteristics &amp; Collection</td>
<td>8, 9</td>
</tr>
<tr>
<td>9. Wastewater: Processing</td>
<td>10, 11</td>
</tr>
</tbody>
</table>

EVALUATION:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Percentage</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests (5)</td>
<td>40%</td>
<td>TBA</td>
</tr>
<tr>
<td>Lab Reports</td>
<td>35%</td>
<td>TBA</td>
</tr>
<tr>
<td>Final Examination</td>
<td>25%</td>
<td>Date to be set by the Registrar</td>
</tr>
</tbody>
</table>

Notes on Evaluation:

1. Students who do not complete all the required work should not expect to pass the course.

2. Tests and Examinations:
   - Test dates will be determined by class progress and will be approximately every 2 weeks.
   - Tests and exams may include both multiple choice questions and written answer questions, and will be based on material covered in lectures and labs. Anything taught in both the lecture and the lab will be tested on lecture exams (*these are important concepts!*).
   - Absences from tests or exams will result in a mark of zero (0%), unless the absence is verified (doctor’s note or other acceptable excuse).
   - The final lecture examination must be written in order to complete this course. (Note: travel plans will not be accepted as a valid excuse for missing a final exam.)
   - Students should consult: [http://keyano.ca/current-students/students/exams](http://keyano.ca/current-students/students/exams)
3. Laboratory:

- The laboratory component will be discussed in class and is detailed in the lab manual.
- Some labs will be not be located in Room S214, but will be computer based tutorials.
- Laboratory assignments are to be the product of each student’s own work. Although you may work in pairs during the lab period and discuss the assignment prior to doing the work, you are expected to do the actual work by yourself, independently of any other student, including your lab partner. Where, in the opinion of your instructor, there has been collaboration among two or more students in the preparation of laboratory assignments, the grade will be divided between the participants or a grade of zero will be given (see academic misconduct, pp.37-39 in the college calendar). Do not share assignments, nor loan them to anyone.
- Late assignments will be penalized 10% per day late and will not be accepted if more than 5 days late.

Note: Lectures, tests, lab assignments, and textbook readings are all designed to help you succeed in this course. Completing assignments and attending lectures are essential to your success. Students who do not complete all the required work should not expect to pass the course. Good study habits, such as reviewing material in advance of the midterms and participating in class, will also aid your efforts.

CLASSROOM AND LABORATORY POLICIES:

- Attendance in the laboratories is compulsory and all absences must be documented. Absence from without a valid reason may result in the student being required to withdraw from the course.
- Regular attendance is expected at lectures and attendance will be taken. The lectures will often include material which is not in your textbook or the emphasis in class may differ from that in the text; you will be responsible for the material taught. Notes and PowerPoints should be thought of as study guides: you must take additional notes in class to do well!
- You will require a lab coat to work in the lab. This coat must be worn at all times when you are in the lab, regardless of the activity you are involved in.
- Cell Phones and Electronic Devices:
  a) Can be used in class only for course relevant work;
  b) Should not be a disruption to other students.
GRADING SYSTEM:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Description</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>A</td>
<td>Excellent</td>
<td>4</td>
</tr>
<tr>
<td>A-</td>
<td></td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>Good</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>B-</td>
<td>Good</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>Satisfactory</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>Satisfactory</td>
<td>2</td>
</tr>
<tr>
<td>C-</td>
<td></td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>Minimal Pass</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>Failure</td>
<td>0</td>
</tr>
</tbody>
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A minimum grade of ‘C-‘ is required for progression.

IMPORTANT DATES:

<table>
<thead>
<tr>
<th>Jan 6</th>
<th>First Day of Classes</th>
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</thead>
<tbody>
<tr>
<td>Feb 17</td>
<td>Courses dropped after this date will be designated “W”. (A withdrawal (W) is not reflected in your GPA)</td>
</tr>
<tr>
<td>Feb 17</td>
<td>Family Day (College Closed)</td>
</tr>
<tr>
<td>Feb 21-25</td>
<td>Reading Week (No Classes)</td>
</tr>
<tr>
<td>Mar 7</td>
<td>Courses dropped after this date will be designated “WF”. (A withdrawal failure (WF) counts as a 0 in your GPA)</td>
</tr>
<tr>
<td>Apr 17</td>
<td>Last day of classes</td>
</tr>
<tr>
<td>Apr 18</td>
<td>Good Friday (College Closed)</td>
</tr>
<tr>
<td>Apr 21</td>
<td>Easter Monday (College Closed)</td>
</tr>
<tr>
<td>Apr 22-30</td>
<td>Final Exams</td>
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COLLEGE POLICIES

Equality, Equity and Respect

The Keyano College is committed to providing an environment of equality, equity and respect for all people within the College community. All members of this community are considered partners in developing teaching and learning contexts that are welcoming to all. Faculty, staff, and students are encouraged to use inclusive language to create a classroom atmosphere in which students' experiences and views are treated with equal respect and valued in relation to their gender, ethnic and cultural background, and sexual orientation.

Students should consult: [http://keyano.ca/current-students/individual-rights](http://keyano.ca/current-students/individual-rights)

Plagiarism and Cheating

Every student expects to be treated and evaluated fairly in a course. Plagiarism and cheating robs everyone of this right.

No student may submit words, ideas or data of another student or person as his or her own in any writing, project, assignment, quiz, electronic presentation, exam etc. Any work used that is not the student's own must be clearly cited as belonging to someone else. There are penalties for using other's work and not citing it. The Student's Rights & Responsibilities document clearly outlines these penalties and the appeal process.

- No learner can obtain information from another student during an exam.
- No learner can bring unauthorized information (paper or electronic) into an exam or quiz.
- No student can submit work done in another course for grading in this course without the written prior approval of the course instructor.
- No student can submit copyright protected or commercially produced materials as part or all of an assignment without proper citation & permission.

Student Rights & Responsibilities

Students should consult the Keyano College Credit Calendar or online at: [http://keyano.ca/sites/default/files/a_files/calendars/keyano.calendar.credit(2012-2013).pdf](http://keyano.ca/sites/default/files/a_files/calendars/keyano.calendar.credit(2012-2013).pdf)

Specialized Supports and Duty to Accommodate

Disability Support Services: Learner Assistance Program

If you have a documented disability or you think that you would benefit from some assistance from a Disabilities Counsellor, please call or visit the Disability Supports Office 780-792-5608 to book an appointment (across from the library). Services and accommodations are intended to assist you in your program of study, while maintaining the academic standards of Keyano College. We can be of assistance to you in disclosing your disability to your instructor, providing accommodations, and supporting your overall success at Keyano College.

Specialized Supports and Duty to Accommodate

Specialized Support and Duty to Accommodate are aligned with the office of Disability Support Services: Learner Assistance Program (LAP) guided by federal and provincial human rights legislation, and defined by a number of Keyano College policies. Keyano College is obligated by legislation to provide disability-related accommodations to students with identified disabilities to the point of undue hardship.
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_____________________________   _____________________________
Blaine Legaree, Instructor   Date

Reviewed and approved by:

_____________________________   _____________________________
Louis Dingley, Chairperson   Date

_____________________________   _____________________________
Guy Harmer, Dean   Date