ENGG404 Course Syllabus – v20191221 Term: 2020W

Course Title: ENGG404 – Leadership in Risk Management (ESRM-LRM)

1. Welcome to Leadership in Risk Management: An Integrated Approach."

"As future engineering and business leaders, you will be confronted with a myriad of risks. Your job will be to manage those risks — all of them. If you focus just on financial risk, at best you will limit your success, at worst you will fail miserably. Apply the principles learned in this course and you will be prepared to make risk decisions competently; ignore these principles not only at your own peril but at the peril of the lives and well-being of your co-workers, neighbours, friends, family, and your community."

Adapted from "Vision 2020 Process Safety: The Journey Continues", Center For Chemical Process Safety, An AIChE Technology Alliance, April 2013.

2. The Purpose of the Syllabus:

The purpose of the syllabus is to document the course logistics, how the course is administered and delivered, and the academic and professional expectations of students in this course.
At the end of this chapter, the student should be able to:

- Explain the course logistics and how this course is administered and delivered.
- Describe the academic expectations and professional expectations that are placed upon the student.
- Apply the content of this chapter to the benefit of the student.

3. Instructor Information and Means of Contact

School Web-site:
https://www.ualberta.ca/engineering/departments/engineering-safety-and-risk-management

Lecturers in the School of Engineering Safety and Risk Management:

Prof. Gord Winkel, P.Eng., M.Sc.Eng.	Director, Industrial Professor	winkel@ualberta.ca
Prof. John R. Cocchio, P. Eng., MBA	Industrial Professor	cocchio@ualberta.ca
Dr. Lianne Lefsrud, PhD, P.Eng.	Assistant Professor	lefsrud@ualberta.ca
Dr. Renato Macciotta, PhD, P.Eng.	Industrial Professor	macciott@ualberta.ca
Dr. Lisa White, PhD, P.Eng.	Industrial Professor	lnwhite@ualberta.ca
Prof. Chris Coles, P.Eng., M.Eng.	Associate Director, Industrial Professor	ccoles@ualberta.ca

Before you contact a member of the Instruction Team:

- For information of a general nature:
  1) Check the eClass pages to review the **Course Syllabus** (this document), or the **Course Plan**, or the **course content in the eClass sections**, or the **Announcements**.
  2) Ask in the lecture or seminar.
  3) If after having reviewed the above, then contact a member of the Instruction Team.
- Note: An email of a general nature (e.g. "When is the final exam?" or "What do I need to do if I can't attend a mandatory seminar?") that is directed to any member of the Instruction Team will likely go unanswered especially if the information is readily available on eClass.

- For information of a personal nature to you, the student (e.g. "I have a conflict with other exams and the final exam. How do I arrange an alternate date?"), then direct your inquiry to your professor(s).

Office Hours and Means of Contact:

a) Instructors are available for brief consultations immediately before or immediately after the lecture / seminar inside / outside the classroom.
b) Instructors and Teaching Assistants are available for the period of time after the mandatory duration in the seminars, as announced at the start of each seminar. The Instructors purposely make this time available for student consultations – take advantage of this available time.
c) Instructor availability is posted on eClass – see "Professor Availability". Preference is by appointment.

d) Concerning email requests: Begin the message with the subject "*ENGG404 2020W – <your issue>*" (e.g. "*ENGG404 2020W – Conflict with Final Exam Date*"). Your concern will be directly addressed. The Professor will respond within 2 business days, with an attempt to respond during business hours. Book an appointment if you wish to discuss marks and grades."

4. Course Information:

Terms offered: Fall, Winter, Spring / Summer (May – August); the course transpires over 13 weeks each term.
Class time and locations: Refer to BearTracks for class times (lectures and seminars) and locations.
TA Information: Graders and Teaching Assistants will be posted on eClass.

University of Alberta calendar description: *3 (fi 8) (either term or Spring/Summer, 3-3S/2-0) Basic concepts of risk and consequences of loss incidents; risk management principles and practices; incident investigation, causation, root cause analysis; process safety management; the roles of government agencies, professional bodies and industry associations; workplace safety; risk-based decision-making processes; leadership and the human-factors side of risk management. The course focuses on the principles and practices of leadership towards the effective application and implementation of risk management in major organizations across all engineering disciplines. Industry virtual tours, case studies, seminars and team projects specific to the student's engineering program will be used to develop competencies and proficiencies in applying leadership and organizational effectiveness for successful risk management.

Prerequisites: There are no prerequisites for ENGG404. Students must normally take this course per their program and plan. **Special note on restrictions:** For any student that is considering taking ENGG404 out-of-sequence (i.e. not taking this course per their program / plan / year schedule), please note that industry work experience and higher education greatly enable a student to succeed in this course; thus we strongly do NOT encourage you to take this course unless: a) you are a mature (returning) student with one or more years of industry employment; b) you are a student in co-op stream or traditional stream with two four-month work terms in an industry directly related to their field of study; c) you have completed a degree outside of engineering, or d) you are a fourth year business and commerce students.

Lab Sections: None.

Seminar Sections: As posted in BearTracks.
The seminar periods in the first two weeks of the term may be used for lectures; see the Course Plan.
Seminar Periods, beginning with Week 3 Seminar or as otherwise scheduled in the Course Plan, are used for instruction on the team project content:

- The dates for the seminars are posted in eClass, the Course Plan, and are subject to change.
- *The seminars are used for your team to work on your team project; thus, you MUST attend the seminar in which you are registered*
- ***Portions of each seminar are mandatory attendance per the Course Plan. Refer to the Marking Scheme as a marks deduction may apply for non-attendance.*** *If you have a conflict with or have missed a seminar, talk to the professor to resolve and perhaps avoid the deduction.*

Note: Seminars are NOT scheduled for all weeks in the term. For the scheduled seminars, these have a mandatory, planned activity (e.g. an introduction and brief overview of certain sections of the team project) followed by a period of self-directed work on your team project. Members of the Instruction Team will be present to aid, coach, and instruct. It has been demonstrated that making continual progress on parts of a team project results in less stress on the students and a better quality team project (and higher mark); a good fraction of teams are better than 90% complete the week prior to the due date. The required seminar times are posted in the Course Plan on eClass.

Moodle on eClass: eClass is used extensively in this course to guide the student, to deliver on-line content, to collect term work, to post student assessment (assignments, quizzes, exams), and to return all term-work. Your marks on the term work components will be reported through eClass; however, note that eClass does not weight missed term work or other deductions, and cannot be relied upon as the accurate and precise course mark. Your final grade will be reported through BearTracks.

ePoll: ePoll is used to administer in-class quizzes about once per week through-out the term, delivered according to the lecture material they support. These in-class quizzes can only be accessed and completed while in the lecture.

5. Course Objectives and Philosophy:

ENGG 404 develops core competencies and proficiencies for leadership in risk management. Specific CEAB Graduate Attributes assessed in this course are: Professionalism, and Ethics and Equity, and Impact of Engineering on Society and the Environment.

The course focusses on the principles and practices of leadership towards the effective application and implementation of risk management in major organizations, all towards organizational effectiveness for successful risk management. In addition, effective and successful leadership in risk management is multi-disciplinary – regardless of your engineering discipline or specialty, or other profession for that matter. The team project is a mechanism to apply risk management in your field of engineering. Active learning and engagement are key enablers for learning and applying the course concepts.

This course holds that risk management is beneficial not only towards avoiding loss incidents but also towards improving productivity, reliability, efficiency, quality, and ultimately towards business sustainability. The course incorporates legal, ethical, and leadership / management responsibilities, and prepares students to effectively manage risk as future leaders and/or designers in their respective organizations.

The purpose of this course is to:

- Help students build skills, competencies, and capabilities for applying sound leadership in risk management through application of the incident investigation and root cause analysis work processes, particularly concerning the implementation of introductory leadership principles and practices in both process safety and occupational safety risk management.
- Demonstrate the value of this discipline to industry in today's business environment, as well as demonstrate the importance of this expertise to the students' careers.
- Provide students with knowledge, tools, informed perspectives, and an opportunity to apply the knowledge and tools; collectively, these will shape their attitudes, set the foundation for establishing a sound set of positive values beneficial to organizations, give the students a real life view of this field of expertise, and prepare the student as a future leader in risk management.
- Learn and work in a team environment much like to today's workplaces. This course is intended to model the real workplace for professionals and develop a culture of collaboration.

6. Marking Scheme – the Allocation of Course Marks and Notes:

Item	**Marks**
On-line Quizzes	6%
In-class Quizzes	5%
Assignment #1	2%
Assignment #2	2%
Assignment #3	5%
Assignment #4	5%
Team Project (Progress Report 5% + Final Report 10%)	15%
Final Exam	60%
Deductions *(see section below)*:	variable
Total *(less any applicable deductions)*:	**100%**

Additional notes on Solutions to Term-work, Final Grade, Team Project Assignment, Sickness or Other Excusable Absences, Calculators, and Deductions are noted here.

A) **Solutions to Term-work:** All term work with the exception of the in-class quizzes, is administered (posted, submitted, and returned with feedback) through eClass/MOODLE. Solutions for all on-line quizzes and assignments will be posted in accordance with the Faculty Academic Policies i.e. the on-line quizzes and assignments are re-opened for viewing by students after the due dates, and the solutions are provided through the "General Feedback" or similar section of the quiz or assignment for each. For the Team Project: Because each project is unique, solutions cannot be provided; however, one or more examples of previous team projects and the detailed marking rubrics are posted as aids to students. Solutions to in-class quizzes are provided in-class at the time of the quiz. A student may request a review of any of their term work with their professor.

B) **Missed Term Work:** From the University Calendar Academic Regulations: "*Excused absences* (for missed term work) *are not granted automatically and will be considered only for acceptable reasons*" as described in the University Calendar. "*Unacceptable reasons include, but are not limited to personal events such as vacations, weddings, or travel arrangements. When a student is absent without acceptable excuse, a final grade will be computed using a raw score of zero for the work missed.*"

C) **Final Grade:** The Final Grades for all students are approved by the department chair (or delegate). The office of the Dean has final oversight on all grades. Letter grades are assessed according to the **University Calendar** under section **Evaluation Procedures and Grading System**, item 4): *Assigning Grades: Grades reflect judgements of student achievement made by instructors and must correspond to the associated descriptor. These judgements are based on a combination of absolute achievement and relative performance in a class.* The final letter grade assigned is based on the student's relative ranking in the class, and the distribution of the letter grades for a 400-level course in The Faculty of Engineering approved range.

Based on results and grade distributions in previous years:
a) The Letter Grade of A or higher will be submitted for those achieving a total course mark of 90% or higher; that is, based on distributions, the cut-off mark to get an A may be 90% or it may be lower than 90%, but it will not be higher.
b) The Letter Grade of D or higher will be submitted for those achieving a total course mark of 55% or higher AND a minimum score of 50% or higher on the final exam. For example, minimum 55% total course mark AND minimum 50% final exam mark must be achieved in order to attain the Letter Grade of D; anything less in either or both, the Letter Grade of F is assessed.
c) Minimum marks required for other letter grades vary from year to year and cannot be predicted ahead of time.

D) **Team Project Assignment:** The major assignment is a team project (usually 4 or 5 students per team, assigned by the Professor). Refer to **The Team Project Instruction Manual** for more details. Your mark on the Team Project may be adjusted as described under the section **Deductions** in this section of the syllabus.

E) **Class Attendance, Participation and In-class Activities:**

Since the student's presence at lectures and seminars, participation in classroom discussions and projects, and the completion of assignments are important components of this course, students will serve their interests best by regular attendance. Those who choose not to attend must assume whatever risks are involved i.e. incomplete term-work and/or deductions as described below.

For seminars and team project: See **Seminar Attendance**, **ITP Metrics Peer Feedback Surveys**, and **Individual (Team-Member) Participation and Contributions on Your Team Project** under the section "**Deductions**" below.

For lectures: An in-class quiz will be given about once per week in a lecture to assess in-class participation and competency of an aspect of leadership in risk management. These must be completed in-class i.e. at

the lecture. If not completed or if absent, the student receives "0" (zero) on the in-class quiz. No excuses or extensions will be considered for unexceptional reasons.

F) **Sickness or Other Excusable Absences:** You may experience circumstances that cause you to miss completing term-work. If you miss completing an assignment, consult with your professor to resolve for excusable reasons and determine if marks can be reallocated. Refer to the University Guideline https://www.ualberta.ca/registrar/examinations/exam-guidelines-for-instructors/what-to-do-when-a-student-is-sick Missed Final Exam is handled per University Policy and as outlined in the section below "**Examinations**".

G) **Calculators:** Only approved non-programmable / non-memory calculators are permitted in examinations. Any calculator taken into an examination must have a sticker identifying it as an acceptable non-programmable calculator (gold sticker). Students can purchase calculators at the University Bookstore with the stickers already affixed. Calculators purchased elsewhere can be brought to the Dean's Office where the appropriate sticker will be affixed to the calculator.

H) **Deductions:** Deductions on the course final mark may result from penalties for late or missed submissions, and/or for lack of seminar attendance, and/or for not completing the ITP Metrics Peer Feedback Surveys, and/or for lack of participation/contribution on the Team Project, as described here:

Late or Missed Submissions and Concerns About Marks:

- For individual assignments, team project progress report, and team project final technical report: If the due date is missed i.e. late, students will lose 50% of the earned assignment mark and not accepted with no credit after 3 calendar days late, unless handled by extension.
- For on-line and in-class quizzes: No extensions on due dates for unexceptional reasons.
- Any concerns over marks for any term work (assignments, quizzes, team project) must be brought forward within 7 calendar days of the return date.

Seminar Attendance:

- Portions of each seminar are mandatory attendance beginning with the first of the Team Project seminars, usually the Week 3 Seminar unless stated otherwise in the Course Plan.
- No marks are awarded for attendance; however, failure to attend may result in a **deduction of 2% per seminar** on your final mark e.g. if you miss 3 seminars, the deduction on your final mark is potentially 6%.
- If you have a conflict, talk to the professor well in advance of the seminar so that alternate arrangements can be made.
- If you miss a seminar, consult with your professor to resolve for excusable reasons.
- In all cases, consult with your team to ensure that you are not neglecting your responsibilities towards fair and equitable contributions to your team.

ITP Metrics Peer Feedback Surveys:

- The ITP Metrics Peer Feedback Surveys (ITP), or comparable method, is the preferred academic survey process for peer evaluation and feedback.
- Refer to **Team Project Instruction Manual for the Process for the ITP Metrics Peer Feedback Survey** for full details on the methodology.
- ITP will be formally used in this course two times, midway through and at the end of the term.
- Your completion of the ITP surveys is a mandatory. No marks are awarded for completing the survey; however, failure to complete the survey as required may result in a **deduction of 3%** per non-completion on your final mark e.g. if you do not complete both surveys, the deduction on your final mark is potentially 6%.
- If you miss completing a survey, consult with your professor to resolve for excusable reasons.
- The feedback will be anonymous and only seen by the instructor. The feedback will be used to assess fair allocation of marks in the Team Project.

Individual (Team-Member) Participation and Contributions on Your Team Project:
Full participation and contribution by all team members on the team project is not only encouraged BUT ALSO EXPECTED. Lack of participation and/or contribution may result in a deduction on an individual's total team project score.

Your participation and contribution to your team project will be assessed by your team-mates. In the course of your team project, an individual's participation and contribution may be called into question – including yours – by other members of the team. Lack of participation and contribution may hinder team progress; thus your team may need to self-assess and undertake a self-managed "team evaluation and correction". Your team must understand the reasons behind a person's "lack of participation and contribution". There are several possible causes for such behaviour:

- **"Lack of communication / lack of understanding".**
- **"Reap benefits without the effort".**
- **"Control by one or more members to the exclusion of the individual":**

These are described in **the Process for the ITP Metrics Peer Feedback Survey**. If one of these issues arises and the team cannot self-manage it, the concerned team members should contact your professor for guidance, and perhaps intervention. Experience shows that team issues do not always resolve themselves and ignoring them only adds to the frustration. Please do not wait until it is too late to ask for help from the professor to help resolve dysfunction within the team.

As explained here, the latter two behaviours **("Reap benefits without the effort"** and **"Control by one or more members to the exclusion of the individual"**) may result in a negative adjustment of an individual's mark on the team project i.e. a deduction. Your participation and contribution to your team project will be assessed by your team-mates. The ITP Survey will be used to formally conduct this assessment for purposes of gauging your and your team-mates' performance on the team project. The results of the survey may negatively impact an individuals' mark on the team project. Adjustments may be made on either of two latter cases.

It is important for individuals to take self-correcting actions or risk deductions on the team project component of the final mark, as described here.

a) Where it has been substantiated through peer feedback and/or instructor observations that the individual expected to "**reap the benefits without the effort**", the individual of concern may be assessed and appropriate adjustments may be made for lack of effort i.e. deductions. Note: the onus is on the student who is being assessed the deduction to demonstrate their contributions to the team project.

b) A sliding scale on the ITP Adjustment Factor combined with students' comments/feedback and instructors' observations are used to apply the deduction for non-participation and/or non-contribution:

ITP Adjustment Factor Range (score without self)	Individual's Total Team Project Score Deduction Factor:
>4.4	No deduction
1.0 to 4.4	Apply 51% maximum to 0% minimum
<1.0	Apply 100% maximum to 51% minimum

i.e. 1.5% deduction factor per 0.1 ITP Adjustment Factor Unit between 1.0 and 4.5
(Your Score – 4.4)*15 = %Deduction, where score 1.0<=Your Score <=4.4

- The range of deduction takes into account the feedback comments and allows for differentiating between one student who scores 1.0 and another who scores 4.5, and/or the extent of comments given by team-mates.
- Example 1: The individual's total score on the team project is calculated as (1 - %Deduction) times the Total Team Project Score. If a team scored a Total Team Project Score of 15% out of 15%, and an individual's deduction is 10%, the individual receives a score of (1 – 10%) times 15%, or 0.9% times 15%, or 13.5% out of a possible 15%.
- Example 2: For a rating of 1.0 or less, there will be a detailed review of all concerned. The deduction ranges between 51% and 100% i.e. a deduction of 100% of the team project component may apply if it has been verified that the student in question did not contribute at all to the team project i.e. the student earns 0% on the team project component of their final mark.

c) Where it has been established that "**one or more members exercised excessive control to the exclusion of the individual**" wherein the individual did deliver on what was assigned, but was not given fair opportunity and/or meaningful opportunity to engage with and collaborate with the other team members on significant content, the other team members may be assessed and appropriate negative adjustments may be made based on lack of effort to engage and collaborate as a team. Deduction not to exceed 20% of the total Team Project Score.

7. Textbook and Course Materials:

Text: *"A Handbook for Engineering Safety and Risk Management, Leadership in Risk Management"*; by Professor G. Winkel, Professor J.R. Cocchio, Dr. L. White, Dr. Macciotta, and Professor C. Coles; will be made available. If there is new information presented, then it will be posted on eClass and/or hard-copies distributed.

Website: eClass MOODLE for the course in which you are enrolled.

Previous Examples of Evaluative Materials: The student will become competent and gain credit in this course: by attending the lectures and seminars; by engaging in any in-class active learning exercises; by participating in the team project and contributing to their team project in a fair and equitable manner; by completing the on-line quizzes, in-class quizzes, and assignments; by studying for the exam(s); and by writing the exam(s). All of these activities are designed to prepare the student to effectively write the final exam. Examples of most responses to representative evaluative materials are presented in the active learning exercises, in the course lectures and seminars, and on the eClass on-line quizzes and assignments.

No copies of the final examination for ENGG404 have been released. If you are in possession of a final examination for this course, you are contravening academic honesty and may be subject to severe sanctions per the University Academic Policies as described in the University Calendar. Please talk with your professor about this!

Our teaching and learning philosophy for ENGG 404 encourages students to attend lectures prepared and ready to engage through a blended learning approach. To prepare for each lecture, and ultimately for the final examination, we recommend that you:

- Pre-read the chapters in the Handbook, view the case study / learning videos before each lecture per the Course Plan, and complete the assigned quizzes;
- Attend all lectures;
- Participate and engage in the in-class quizzes and in-class "please confer" active learning exercises;
- Complete the assignments as these are done in the exact same manner and format as the final examination;
- Contribute your fair share to the team project and be able to describe, explain, and analyze your loss incident;

Additional notes:

- The Handbook is an aid for helping students prepare for lectures. Similar to a text book in other classes, students are not expected to read & understand all of it, nor does the Handbook follow in lock-step with the Course Plan.
- The concepts in ENGG 404 build upon each other from the beginning of and throughout the course.
- A copy of the Final Exam Expectations will be made available through eClass.
- A list of chapters and specific sections on which to focus studies will not be given.

8. University Policies:

It is the student's responsibility to be aware of and understand the policies of the University that concern academic integrity, and specifically the Code of Student Behaviour, and any amendments issued by the Dean's Office of The Faculty of Engineering.

Policy: The policy about course outlines can be found in **Course Requirements, Evaluation Procedures and Grading** of the **University Calendar**.

Academic Integrity:
The University of Alberta 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 Code of Student Behaviour (online at www.governance.ualberta.ca) and avoid any behaviour which 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." The Code of Student Behaviour:
https://www.ualberta.ca/governance/resources/policies-standards-and-codes-of-conduct/code-of-student-behaviour

You may also want to review:
https://www.ualberta.ca/current-students/academic-resources/academic-integrity

The Office of the Dean, Faculty of Engineering, has published additional points on the University's **Code of Student Behaviour, dated June 2019**. This is posted separately on eClass.

Professional Conduct: As engineering students, you are also members of The Association of Professional Engineers and Geoscientists of Alberta, and are bound by the Association's Code of Ethics. Academic dishonesty also constitutes professional misconduct. Given that we are professionals, our standard is higher; thus, there is no tolerance for academic dishonesty in this course.

Recording Devices:
Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

As a rule, audio and video recording devices are NOT allowed in any lecture or seminar in this course. A student may be asked to relinquish their device for the duration of the lecture or seminar. Exceptions to this rule will be announced in class.

Course Fees:
The team project will require printing a poster-size document, (plain paper, black-and-white) two times; there is an expectation that students pay for printing this poster-size document, about $20-$30 per document. Printing can be done at any shop although SUBPrint is most convenient.

Examinations:
Authorized Materials: Only those items specifically authorized by the instructor may be brought into or distributed at the exam facility. The use of unauthorized devices with capability for data-access / memory, personal listening, communication, recording, photographic and/or computation is strictly prohibited. Students should refrain from bringing any unauthorized electronic device into an examination room, including laptops, cell phones, high tech watches, high tech glasses, or other such devices.

Important Information About the Final Examination Dates and Students' Responsibilities:
a) For the final exam: Deferred examinations and/or re-examinations are permitted in accordance with requirements in the University Calendar.

b) The Final Exam is administered at The Learning Assessment Centre (LAC). Students are encouraged to visit the LAC and ask for a brief familiarization tour at any time during the term, especially if the student has not written an exam at LAC.
c) The final exams will be held on the planned sequence of dates and times as set by the ESRM Instruction Team, as documented on the Course Plan at the start of the term. These dates and times, and the process for booking your day and time to write the final exam at LAC, will be communicated within the first week of classes through: the Course Plan, an announcement on eClass, and instruction in class.
d) Students shall expect an email message from LAC soon after the start of the term. This email will invite the students to book their final exam date and time at LAC within the date and time windows
e) Students must self-book their date and time for their final exam as soon as possible after they have received their booking invitation. Space is limited at LAC, so students are advised to book at least three weeks prior to the end of classes / lectures i.e. sooner rather than later. If the student books too late, there may not be any time slots remaining at the student's preferred time, and the student will be required to write at a time within the planned sequence other than the student's preferred date and time.
f) Students must monitor their final exam schedule, and should any conflict arise, the student must approach their professor of the ESRM Instruction Team to make an alternate arrangement.
g) If the student cannot schedule their date and time to write the final exam due to conflict on the dates as communicated in the Course Plan, then the student must approach their Professor as soon as possible to determine an alternative arrangement. Details to be provided during the first week of classes, usually the first day.
h) If the student does not write on their self-booked date and time of the final exam for non-excusable reasons, the student may be assessed 0% on the final exam.
i) Students must immediately notify Engineering Student Services and their professor of the ESRM Instruction Team if they have missed writing their final exam on their self-booked date and time. Students must do this in order to initiate the process to be granted approval to write the final exam on any remaining open final exam windows in the term, or on the deferred date for writing the final exam. Students must apply through Engineering Student Services for approval to write the final exam either on: i) any remaining open final exam windows in the term, or ii) the deferred date.
j) The above information will be communicated through one or more of the following: The Course Syllabus, eClass on-line posting, eClass announcement, and in-class announcement as part of the PPT lecture on "Exam Expectations".

9. Course-level Learning Outcomes:

The learning outcomes are stated relative to the student's completion of the course wherein the student has gained mastery of the topic as planned for and expected throughout the entire course. In many cases, a learning outcome may be realized at the completion of the chapter; however, the learning outcome may not be realized immediately because this is an integrated course (not linear), and other chapters and chapters may need to be mastered in conjunction with the chapter being studied.

At the end of this course, when it is expected that the student will have mastered the content of the course, the student should be able to:

1) Appraise the safety culture of an organization, and positively influence the safety culture of that organization towards improving or sustaining the safety performance.
2) Assess and positively influence the safety leadership in an organization, and personally contribute to management leadership, commitment and accountability in that organization.
3) Apply four leadership tools (Checklists, Report and Correct Sub-standard Conditions and Sub-standard Practices, Planned Inspections, and the Hazard Assessment Audit Process) to evaluate workplace conditions and practices, recommend management system improvements, and be equipped to coach others to address risks in the workplace.
4) Apply a set of incident investigation and root cause analysis tools to a loss incident; adapt those tools to a variety of engineering contexts; link latent causes to management system elements; and recommend management actions to improve the safety performance of an organization.
5) Collaborate in a team to: i) apply risk management principles and practices to a loss incident, ii) prepare an incident investigation and root cause analysis report including a set of recommendations and business case, and iii) evaluate team performance and individual performance.

6) Integrate and apply lessons learned from others (major case-study loss incidents, presentations by risk management leaders in industry, government, and institutions) to prevent a loss incident in your future workplace.
7) Explain relevant portions of Alberta's Engineering and Geoscience Professions Act and the APEGA Code of Ethics in the application of risk management within the practice of professional engineering.
8) Recognize a situation where professional conduct and ethics may be called into question, examine that ethical dilemma, generate alternative courses of action, evaluate possible consequences, and take appropriate steps to make an informed decision to remain within the scope of professional practice.

10. Lab Information: No lab is offered in this course.

11. Course Content and Course Plan:

The **Course Plan** is the detailed schedule of all course content. Refer to the separately published **ENGG404 Course Plan** posted on eClass for the detailed scheduled dates for lecture topics, seminar topics, assignment due dates, and final exam. Schedule management for external presenters may result in changes, and these will be posted. Although the lectures will generally follow the order of chapters, some course content will weave through the lectures to provide the technical and practical components to complement the theoretical teaching. As indicated earlier, due to the schedules of our industry and government guest lecturers, the order cannot always be maintained.

For important revisions and dates, it is advisable that students refer to the most recent copy of the Course Plan as posted on eClass, and not the first copy issued at the start of the term.

12. Accreditation Units

Accreditation Units: AU = 12.6 weeks x (3 + 0.5 (0 + 3/2)) = 47.25

Lectures: To determine number of lecture-hours = 12.6 x 3 = 37.8 or rounded up to 38 nominal lecture-hours in the term, or 38 lectures.

Seminars: To determine the number of seminar-hours = 12.6 x 1.5 = 18.9 or rounded up to 19 or 20 seminar-hours per term. This is allocated as follows: One seminar at nominal 3 hours + four seminars at 3 hours + 2 seminars at 2 hours = 19 nominal seminar hours in the course plan.

13. Overview of eClass, How Work is Submitted, Exams at LAC, and AR Accommodations:

eClass Overview: All sections of ENGG404 are combined on the **Moodle on eClass** platform (**eClass**). There are no differences between the sections other than scheduled times for lectures, seminars, and examinations. Make sure you have access to **eClass** using your @ualberta.ca email account as course material and schedule updates will be posted on **eClass**, and announcements to that effect made through **eClass**. Instructions and directions for using **eClass** will be given in the course. **eClass** is used extensively in this course to deliver on-line content, to collect term work, and to return all term-work. Your marks on the term work components will be reported through **eClass**. Your final grade will be reported on **BearTracks**.

How Work is Submitted: All assignments, on-line quizzes, team project components, and the final exam will be submitted for academic credit through **eClass** on or before the due date as posted on the **Course Plan**. Specific instructions for submitting on-line using **eClass** will be given in the lecture. It is your responsibility to ensure your work has been properly submitted in the prescribed form. It is strongly recommended that you maintain a copy of your work. Specific instructions for writing the exams on **eClass** will be given in the lecture.
In-class quizzes are administered through **ePoll**.

Exams at The LAC: The Final Exam is administered through the Learning Assessment Centre using **eClass** on secured work-stations (locked-down desk-top computers). The series of quizzes and assignments is intended to build your skills for writing your exam(s) on **eClass**. All students are required to write the Final Exam at LAC unless the student has a specific accommodation approved through AR.

AR Accommodations: Students with an accommodation MUST inform their professor per requirements of the University Academic Policies. It is the responsibility of the student to inform the professor of any approved accommodation in a timely manner e.g. in the first two weeks of the term. Failure to do so may result in your accommodation not being met.

14. Guest Lecturers:

In the course schedule, there are a number of guest lecturers from industry and government who take time from their busy schedules to share their expertise and perspectives with you. It should be noted that the contents of the lectures demonstrate unique insights into how agencies and businesses practice safety and risk management in the workplace. Although their application may sound specific, the topic is transferable to any industry application, and provides essential learning on what it takes to be a responsible, effective, and top leader in your organization.

Therefore, it is important that you attend these particular lectures, not only because their presentations are valuable to you, but also to demonstrate your appreciation for their support of our program. Show our guest lecturers that we value their support by filling our classroom!

The dates for the guest lecturers are shown in the **Course Plan** posted on eClass. As stated previously, schedules can change due to their business demands, and the Course Plan will be updated.

15. Summary:

This is a course that takes a real and realistic look at Leadership in Risk Management in today's industrial and institutional workplaces. With this in mind, the course design is intended to model the real workplace for professionals not only in the learning and application of risk management principles and practices, but also in the behaviours expected of future professional engineers as leaders in risk management.

This course will provide key elements to effectively manage risk and deliver on management accountability for safe and reliable operation.

You will gain knowledge of the fundamental elements needed in order to effectively understand, manage, and lead organizations with engineering safety and risk management as the foundation.

Our goal is to set the foundation for you to be successful as an engineer through the continued application of sound leadership and risk management principles throughout your careers.

At this point, we would like to take a moment to thank all of you for being here, for your commitment for becoming a leader in risk management.

Enjoy, have a great session, and best of success!

Professor Cocchio, Professor Coles, Dr. Lefsrud, Dr. Macciotta, Dr. White, and Professor Winkel