

Western University - Department of Earth Sciences
GL 9567B: Advanced Petroleum Play and Prospect Assessment
Winter 2016

Course Information

Location: BGS 1058 (Petroleum Geology Lab)

Seminars: Tuesdays, 1:30 - 4:30 p.m.

Pre-requisites: by permission of the instructor

Course Description:

This is an advanced graduate course intended to develop comprehensive petroleum play and prospect assessment skills. Students will be provided with a real-world data set consisting of seismic, well log, core, and related geological data. The data are regional in scale, and provided by industry sources. Using this data, students will be instructed in the techniques required to evaluate petroleum play and prospect adequacy, identify drilling targets, determine risk-adjusted economic forecasts, and develop a comprehensive technical and business presentation for evaluation.

The specific location of the dataset is not disclosed in order to encourage independent evaluation, but general guidelines as to the basin location are provided. Literature searches and group review of technical articles is a mandatory part of the course, but the use of published data from within the project area is strictly forbidden as part of the evaluation project.

The work will be conducted in a self-managed team environment, with the instructor providing supervisory guidance and task-specific instruction. Team members will take leadership responsibility for defined components of the integrated assessment process, but will participate in all phases of the project. Standard industry software, such as the Schlumberger Petrel interpretation and modeling system, are used throughout.

At the conclusion of the eight-week assessment period, the student team(s) will present their findings and recommendations to a panel of industry judges who will evaluate their ability to:

- Complete a technical assessment of the petroleum potential of the basin/area.
- Define the key plays, petroleum systems, leads/prospects, and risks.
- Make recommendations on future exploration activity based on prevailing technical and economic conditions.

The course is built on the framework of the American Association of Petroleum Geologists annual Imperial Barrel Award (“IBA”) student competition and will use the same datasets used in that competition. Students are encouraged to officially participate in the competition by registering to compete in the Canada Region semi-finals. Registered participation provides access to donated travel funds to present results in Calgary, along with student teams from other Canadian universities. In addition, official participation in the competition allows Western to retain the competition dataset for future teaching purposes. Official registration, however, is not mandatory. In those years when Western is not participating in the annual IBA contest, one of the retained datasets will be used for instructive purposes.

Instructor Information

Instructor: Dr. Burns A. Cheadle, Associate Professor, Department of Earth Sciences

Email: bcheadle@uwo.ca (Note: Please include 'GL 9567' in the subject line of all emails about this course. Emails without "GL 9567" in the subject line might be deleted as spam)

Office: Biological & Geological Sciences Building, Room 1078

Tel: (519) 661-2111 x89009

Office Hours: by appointment

Course Syllabus

| Week | Objective |
|------|--|
| 1 | Basic principles of play and prospect assessment |
| 2 | Assessment methodology and tools |
| 3 | Database organization |
| 4 | Seismic interpretation I – synthetic well ties |
| 5 | Seismic interpretation II – horizon mapping |
| 6 | Seismic interpretation III – fault modeling |
| 7 | Petrophysical analysis |
| 8 | Play and prospect mapping |
| 9 | Risk analysis |
| 10 | Economic analysis |
| 11 | Presentations |
| 12 | Post-mortem analysis |
| 13 | Group evaluations |

Methods of Evaluation

Grades will be assigned based on the following:

- Individual contribution (70 %) determined as follows:
 - peer evaluation (30%)
 - instructor evaluation (40 %)

 - Team project (30%) determined as follows:
 - team self-assessment (10%)
 - instructor evaluation (20%)
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Course Materials

- The project dataset will be supplied by the instructor
 - Access to software analytical systems will be provided by the instructor in the Petroleum Geology Laboratory (BGS 1058)
 - There is no textbook for this course. Students are expected to conduct technical literature searches to support project-specific evaluation goals.
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The Exceptional Contributor: “The Class Was Better Because You Were Here.”

As part of the learning process I expect all students to participate actively in class. Here are some guidelines to keep in mind when in class:

- You provide clear, concise, and correct explanations that help others gain a better understanding of concepts.
- You make outstanding, original, and informative comments.
- You make highly attentive and constructive comments on other people's statements.
- You ask questions that are penetrating or help clarify.
- You raise your hand strategically (understanding that there are other students in the class).
- You actively encourage others to express their ideas.
- You display body language that communicates interest in what others are saying.
- You arrive to class on time and are not absent without reason.

University Policies:

1) *Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:*

<http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>

2) *Unless you have either the requisites for this course or written special permission from your Academic Counselling Unit to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.*

3) *All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).*

4) *If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Academic Counselling Unit as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Academic Counselling Unit immediately. For further information please see: <http://www.uwo.ca/univsec/handbook/appeals/medical.pdf>*

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Academic Counselling Unit) for visits to Student Health Services. The form can be found here:

https://studentservices.uwo.ca/secure/medical_document.pdf

Accessibility Statement:

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x.82147 for any specific question regarding an accommodation.

Graduate Student Health and Wellness:

As part of a successful graduate student experience at Western, we encourage students to make their health and wellness a priority. Western provides several on campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your graduate degree. For example, to support physical activity, all students, as part of their registration, receive membership in Western's Campus Recreation Centre. Numerous cultural events are offered throughout the year. For example, please check out the Faculty of Music web page <http://www.music.uwo.ca/>, and our own McIntosh Gallery <http://www.mcintoshgallery.ca/>. Information regarding health- and wellness-related services available to students may be found at <http://www.health.uwo.ca/>. Students seeking help regarding mental health concerns are advised to speak to someone they feel comfortable confiding in, such as their faculty supervisor, their program director (graduate chair), or other relevant administrators in their unit. Campus mental health resources may be found at http://www.health.uwo.ca/mental_health/resources.html.