UNIVERSITY OF CALGARY
DEPARTMENT OF GEOSCIENCE
COURSE OUTLINE

1. Course: GEOLOGY 591 – RESERVOIR CHARACTERIZATION AND RESOURCE EVALUATION

Lecture Section:	L01	M	14:00-16:50	ES 924	WINTER 2014

Instructor(s):	Dr. P.K.. Pedersen	ES 240	220-8454	pkpeders@ucalgary.ca

Note D2L will be used for communication and for posting of course material

Geoscience Department ES 118; (403) 220-5841; geoscience.ucalgary.ca

2. PREREQUISITE(S): Geology 449 or Geophysics 449, Geology 461 and 575

ANTIREQUISITE(S): Credit for both Geology 591 and 595.03 will not be allowed.

NOTE: Completion of Geology 593.02 and 593.03 is highly recommended prior to taking this course.

See section 3.5.C in the Faculty of Science section of the online Calendar (http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html)

3. **GRADING**: The University policy on grading and related matters is described in "Academic Regulations, sections F.1 and F.2" of the online University Calendar (**http://www.ucalgary.ca/pubs/calendar/current/f-1.html** and **http://www.ucalgary.ca/pubs/calendar/current/f-2.html**) In determining the overall grade in the course the following weights will be used:

Participation	10%
Lab Exercises	10%
Midterm Exam	20% (March 24 2014)
Paper Presentation	20%
Project presentation	20%
Final lab report	20%

Each piece of work (assignment, laboratory report, midterm test or final examination) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade

4. **Missed Components of Term Work**. The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in section 3.6: **http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html**. It is the student's responsibility to familiarize himself/herself with these regulations. See also **http://www.ucalgary.ca/pubs/calendar/current/e-3.html**.

5. Dates and times of class exercises held outside of class hours, none.

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

Department Approval: ORIGNAL SIGNED **Date: January 09 2014**

6. **EXAMINATION POLICY**:No electronic or written aids (eg. cell phones, tablets, computers, PDAs, notes, textbooks) will be allowed during writing of any exams. Non-programmable calculators will be permitted to answer quantitative questions on exams, if applicable, and permission to do this will be clearly indicated on the examination paper.

   Students should also read the Calendar, Section G, on Examinations: **http://www.ucalgary.ca/pubs/calendar/current/g.html**.

7. In this course, the quality of the student's writing will be a factor in the evaluation. See also **http://www.ucalgary.ca/pubs/calendar/current/e-2.html**."

8. OTHER IMPORTANT INFORMATION FOR STUDENTS:

(a) ACADEMIC MISCONDUCT (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under K. Student Misconduct (**http://www.ucalgary.ca/pubs/calendar/current/k.html**) to inform yourself of definitions, processes and penalties

(b) ASSEMBLY POINTS in case of emergency during class time. Be sure to FAMILIARIZE YOURSELF with the information at http://www.ucalgary.ca/emergencyplan/assemblypoints.

(c) ACADEMIC ACCOMMODATION POLICY. Students with documentable disabilities are referred to the following links:
Calendar entry on students with disabilities: **http://www.ucalgary.ca/pubs/calendar/current/b-1.html**
Student Accessibility Services: www.ucalgary.ca/access

(d) SAFEWALK: Campus Security will escort individuals day or night **http://www.ucalgary.ca/security/safewalk/**). Call **220-5333** for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

(e) FREEDOM OF INFORMATION AND PRIVACY: This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence**, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page**. For more information see also **http://www.ucalgary.ca/secretariat/privacy.**

(f) STUDENT UNION INFORMATION: VP Academic **Phone**: 220-3911 **Email**: suvpaca@ucagary.ca.
SU Faculty Rep. **Phone:** 220-3913 **Email:** sciencerep@su.ucalgary.ca Website **http://www.su.ucalgary.ca/home/contact.html**.
Student Ombudsman: www.ucalgary.ca/provost/students/ombuds; ombuds@ucalgary.ca 220-6420

(g) INTERNET and ELECTRONIC COMMUNICATION DEVICE Information. You can assume that in all classes that you attend, **your cell phone should be turned off**. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

UNIVERSITY OF CALGARY
DEPARTMENT OF GEOSCIENCE
COURSE OUTLINE

GEOLOGY 591
RESERVOIR CHARACTERIZATION AND RESOURCE EVALUATION

TERM: Winter 2014

PREREQUISITE(S): Geology 449 or Geophysics 449, Geology 461 and 575

ANTIREQUISITE(S): Credit for both Geology 591 and 595.03 will not be allowed.

NOTE: Completion of Geology 593.02 and 593.03 is highly recommended prior to taking this course.

LECTURER(S):	Dr. P.K.. Pedersen		ES 240	220-8454	pkpeders@ucalgary.ca

LECTURE :	L01	M	14:00- 16:50	ES 924
LAB(S):	B01	W	13:00-15:50	ES 924
	T01	W	16:00-16:50	ES 924

TEXT: No textbook is required, however the textbook below are highly recommended Stephen Bend (2007) Petroleum Geology e-Textbook, AAPG Special Publication on CD-ROM which can be ordered online from AAPG.org

MARK DISTRIBUTION:

A. Composition of Final Grade

Participation	10%
Lab Exercises	10%
Midterm Exam	20% (March 24 2014)
Paper Presentation	20%
Project presentation	20%
Final lab report	20%

Students who are absent from the midterm exam or final laboratory exam because of illness or other unforeseen circumstances may be granted an excused absence by the Course Coordinator (midterm exam) or Lab Coordinator (final laboratory exam) upon presentation of adequate documentation (a completed Physician/Counsellor Report form <http://www.ucalgary.ca/registrar/PDFs/physcoun.pdf> for illness; equivalent documentation for other circumstances). There will be no "make-up" examinations for excused absences. The weight assigned to the midterm examination will be transferred to the final examination.

Similarly, students who are unable to submit laboratory reports or assignments on time because of similar circumstances will be required to submit the same type of documentation to the Lab Coordinator in order to be considered for a time extension.

B. Final Exam

There is no final exam in this course.

C. Components of Course for Which a Passing Grade is Essential

Students must achieve a passing grade (minimum of D) on both the lecture portion of the course (average of the midterm and final exams) and the laboratory portion of the course to qualify for a passing grade overall.

D. Grading Scheme

A+	96-100	A	90-95	A-	85-89
B+	80-84	B	74-79	B-	70-73
C+	66-69	C	61-65	C-	56-60
D+	53-55	D	50-52	F	0-49

Winter 2014	**GLGY 591**	**Reservoir Characterization and Resource Evaluation**			
Lecture	**Lab**	**presentations**		**Lecture**	**Lab**
January 13, 2014			1	Introduction to class	
	January 15, 2014			1	Project introduction, regional x-section, stratigraphy and play opportunities
January 20, 2014			2	Petroleum system - source rocks and gas and oil composition	
	January 22, 2014			2	Evaluation of study area - Pool history, discovery, official reserves and value
January 27, 2014			3	Well logs and formation evaluation	
	January 29, 2014			3	Structure map, trapping mechanisms
February 3, 2014			4	Porosity, permeability and relative permeability	
	February 5, 2014				GeoSkills Day
February 10, 2014			5	Reservoir architecture and heterogeneity	
	February 12, 2014			4	Core analysis and cut-off
February 17, 2014				*Reading Week*	
	February 19, 2014				*Reading Week*
February 24, 2014			6	Reserves and resources	
	February 26, 2014			5	Core descriptions
March 3, 2014			7	Drive mechanisms	
	March 5, 2014			6	Reservoir architecture
March 10, 2014			8	Production data analysis	
	March 12, 2014			7	Net pay mapping
March 17, 2014		2	9	DST interpretation and pressure data	
	March 19, 2014	2		8	Volumetric OOIP estimation
March 24, 2014				**Lecture Exam**	
	March 26, 2014	2		9	Production Decline Analysis
March 31, 2014		2		10	Comparison of volumetric reserve estimates and group well decline analysis
	April 2, 2014			11	DST evaluations, pressure data, development and infrastructure
April 7, 2014				project wrap up	
	April 9, 2014				project wrap up
April 14, 2014				**Project presentations 1-4pm**	
	April 25, 2014			**Final report due at noon**	