UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF GEOSCIENCE
COURSE OUTLINE
WINTER 2015

1. **Course:** Geology 591, Reservoir Characterization and Resource Evaluation

   Lecture Sections:

   L01: Mo, 14:00-16:50, ES 924
   Instructor, Dr. P. Pedersen, Office ES 264, Tel. No. 403-220-8454, e-mail address, pkpeders@ucalgary.ca,
   Office Hours: by appointment only

   Course website: Desire 2 Learn (D2L)
   Geoscience Department ES 118, 403-220-5841, geoscience.ucalgary.ca, geoscience@ucalgary.ca

2. **Prerequisites:** Geology 449 or Geophysics 449, Geology 575. See section 3.5.C in the Faculty of Science section of the online Calendar (www.ucalgary.ca/pubs/calendar/current/sc-3-5.html)

   Antirequisite: Credit for both Geology 591 and 595.03 will not be allowed.

3. **Grading:** The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Lab Reports	10%	
Lecture Exam	20%	(March 23, 2015)
Project Presentation 1st	20%	
Project Presentation 2nd	25%	
Final Lab Report	25%	

   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. A passing grade in all components is required to pass the course as a whole.
   Note, late submission of lab reports and final lab report will result in a 10% deduction in assignment grade per hour overdue.

   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

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. It is the student's responsibility to familiarize himself/herself with these regulations. See also Section E.6 of the University Calendar

5. **Course Materials:** 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.

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.

7. **Writing across the curriculum statement:** In this course, the quality of the student's writing in laboratory reports will be a factor in the evaluation of those reports. See also Section E.2 of the University Calendar.

8. OTHER IMPORTANT INFORMATION FOR STUDENTS:

(a) Misconduct: 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 Section K. Student Misconduct 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 on assembly points.

(c) Academic Accommodation Policy: Students with documentable disabilities are referred to the following links: Students with Disabilities: http://www.ucalgary.ca/pubs/calendar/current/b-1.html B.1 and Student Accessibility Services: http://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; Student Ombudsman

(g) Internet and Electronic Device Information: You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. 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.

(h) U.S.R.I.: At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference – please participate in USRI Surveys.

Department Approval: Original Signed Date: January 8, 2015

Associate Dean's Approval for
Alternate final examination arrangements: Original Signed Date: January 8, 2015

Winter 2015	GLGY 591	Reservoir Characterization and Resource Evaluation	
Lecture	**Lab**	**Lecture**	**Lab**
January 12, 2014		1	Introduction to class
	January 14, 2014	1	Project introduction, regional x-section, stratigraphy and play opportunities
January 19, 2014		2	Petroleum system - source rocks and gas and oil composition
	January 21, 2014	2	Evaluation of study area - Pool history, discovery, official reserves and value
January 26, 2014		3	Well logs and formation evaluation
	January 28, 2014	3	Structure map, trapping mechanisms
February 2, 2014		4	Porosity, permeability and relative permeability
	February 4, 2014	4	Core analysis and cut-off
February 9, 2014		5	Reservoir architecture and heterogeneity
	February 11, 2014	5	Core descriptions
February 16, 2014		*Reading Week*	
	February 18, 2014		*Reading Week*
February 23, 2014		6	Reserves and resources
	February 25, 2014	**1st project presentations 1-5pm**	
March 2, 2014		7	Drive mechanisms
	March 4, 2014	6	Reservoir architecture
March 9, 2014		8	Production data analysis
	March 11, 2014	7	Net pay mapping
March 16, 2014		9	DST interpretation and pressure data
	March 18, 2014	8	Volumetric OOIP estimation
March 23, 2014		**Lecture Exam**	
	March 25, 2014	9	Production Decline Analysis
March 30, 2014		10	Comparison of volumetric reserve estimates and group well decline analysis
	April 1, 2014	11	DST evaluations, pressure data, development and infrastructure
April 6, 2014		project wrap up	
	April 8, 2014		project wrap up
April 13, 2014		project wrap up	
	April 15, 2014	**2nd project presentations 12-5pm**	
	April 22, 2014	**Final lab report due at noon**	

* The lab and tutorial on February 11, 2015 will take place at the AER core research centre. Students are responsible themselves for walking across to the centre.