



UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF GEOSCIENCE
COURSE OUTLINE

1. **Course:** GLGY 579, Basin Analysis -- Winter 2018

Lecture 01: (MWF, 09:00-09:50 in SB142)

Instructor Name	Email	Phone	Office	Hours
Benoit Beauchamp	bbeauch@ucalgary.ca	403 220-8266	ES 146	Fri 2-4 pm or by appointment

Course Site:

D2L: GLGY 579 L01-(Winter 2018)-Basin Analysis

Department of Geoscience: ES 118, 403 220-5841, geoscience@ucalgary.ca

Students must use their U of C account for all course correspondence.

2. **Prerequisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Geology 445 or 341; and 463 or 483 or 461; and 493 or 491; and Geophysics 351 or 355.
Credit for Geology 579 and 595.05 will not be allowed.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %
5 Quiz @ 8% (TorF and MC questions)	40
In-class comprehension quiz (written)	10
5 Articles Summaries @ 3%: Summary (2%) + Mini Quiz (1%)	15
Research Paper: Basin choice by deadline (2%); Quiz about basin of choice (3%); Research paper (30%)	35

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component 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.

The conversion between a percentage grade and letter grade is as follows;

Letter Grade	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum Percent Required	>92	86-92	82-85	77-81	74-76	71-73	67-70	62-66	58-61	54-57	50-53

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.3](#) of the University Calendar

5. **Scheduled out-of-class activities:**

There are no out-of-class activities scheduled for this course.

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a conflict with the out-of-class-time-activity, please contact your course coordinator/instructor no later than **14 days prior** to the date of the out-of-class activity so that alternative arrangements may be made.

6. **Course Materials:**

Textbook (mandatory): *Basin Analysis (Third Edition, 2013)*, by Phillip A. Allen and John R. Allen, Wiley-Blackwell.

7. **Examination Policy:**

No electronic or written aids (eg. cell phones, tablets, computers, PDAs, notes, textbooks) will be allowed during writing of any exams. Students should also read the Calendar, [Section G](#), on Examinations.

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8. **Approved Mandatory and Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course

9. **Writing across the Curriculum Statement:**

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of those reports. See also Section [E.2](#) of the University Calendar.

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.

10. **Human studies statement:**

Students will not participate as subjects or researchers in human studies.

11. **Reappraisal of Grades:**

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

1. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **15 days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall immediately submit the Reappraisal of Graded Term work form to the department in which the course is offered. The department will arrange for a re-assessment of the work if, and only if, the student has sufficient academic grounds. See sections [I.1](#) and [I.2](#) of the University Calendar
2. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

12. **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. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples.**
- 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 needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for

accommodations for students with disabilities available at [procedure-for-accomodations-for-students-with-disabilities_0.pdf](#).

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Sr. Instructor of the Department of Geoscience, Dr. Rudi Meyer by email rmeyer@ucalgary.ca or phone 403-210-7848. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question: <http://www.ucalgary.ca/pubs/calendar/current/e-4.html>

- d. **Safewalk:** Campus Security will escort individuals day or night (www.ucalgary.ca/security/safewalk/) . Call [403-220-5333](tel:403-220-5333) 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 (FOIPPA). 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 www.ucalgary.ca/legalservices/foip.
- f. **Student Union Information:** VP Academic, Phone: [403-220-3911](tel:403-220-3911) Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: sciencerep@su.ucalgary.ca. Student Ombudsman, Email: suvpaca@ucalgary.ca.
- g. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.
- h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](http://www.ucalgary.ca/usri)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.
- i. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).

Tentative Course Schedule GLGY 579 (W2018)

	Monday (lecture)	Wednesday (lecture)	Friday (lecture)
W	9:00-9:50 SB142	9:00-9:50 SB142	9:00-9:50 SB142
1	1A Jan 08 2018 Course Introduction	1B Jan 10 2018 Basins in their geodynamic environment	1C Jan 12 2018 Physical state of the lithosphere I
2	2A Jan 15 2018 Physical state of the lithosphere II	2B Jan 17 2018 Physical state of the lithosphere III	2C Jan 19 2018 Physical state of the lithosphere IV
3	3A Jan 22 2018 Quiz 1 (covers lectures 1A-2C) Basins due to lithospheric stretching I	3B Jan 24 2018 Basins due to lithospheric stretching II	3C Jan 26 2018 Deadline for basin choice Basins due to lithospheric stretching III
4	4A Jan 29 2018 Basins due to lithospheric stretching IV	4B Jan 31 2018 Basins due to flexure I	4C Feb 02 2018 Paper 01 Summary is due today Basins due to flexure II
5	5A Feb 05 2018 Basins due to flexure III	5B Feb 07 2018 Basins due to flexure IV	5C Feb 09 2018 Basins associated with strike-slip deformation I
6	6A Feb 12 2018 Basins associated with strike-slip	6B Feb 14 2018 Orogen collapse and basin inversion	6C Feb 16 2018 Paper 02 Summary is due today

0	deformation II		Quiz 2 (covers lectures 3Bâ€“5C) Guest Lecturer Daniel Alonso Torres
7	7A Feb 19 2018 No class	7B Feb 21 2018 No class	7C Feb 23 2018 No class
8	8A Feb 26 2018 Guest Lecturer Makram Hedhli	8B Feb 28 2018 Effects of mantle dynamics I	8C Mar 02 2018 Paper 03 Summary is due today Research Basin Quiz Effects of mantle dynamics II
9	9A Mar 05 2018 Quiz 3 (covers lectures 6Aâ€“8C) Sediment provenance and routing system I	9B Mar 07 2018 Sediment provenance and routing system II	9C Mar 09 2018 Sediment provenance and routing system III Dr. A. Embryâ€™s guest lecture
10	10A Mar 12 2018 Basin stratigraphy I	10B Mar 14 2018 Basin stratigraphy II	10C Mar 16 2018 Basin stratigraphy III Dr. A. Embryâ€™s guest lecture
11	11A Mar 19 2018 Paper 04 Summary is due today Quiz 4 (covers lectures 9Aâ€“10C) Subsidence history I	11B Mar 21 2018 Subsidence history II	11C Mar 23 2018 Subsidence history III
12	12A Mar 26 2018 Thermal history I	12B Mar 28 2018 Thermal history II	12C Mar 30 2018 Paper 05 Summary is due today Discussion about Papers 01 to 05
13	13A Apr 02 2018 Petroleum System I	13B Apr 04 2018 Petroleum System II	13C Apr 06 2018 Comprehension Quiz
14	14A Apr 09 2018 Quiz 5 (covers lectures 11Aâ€“13B) USRI surveys (Instructor and TAs)	14B Apr 11 2018 BSD â€“ No class Research Papers in pdf and paper format is due on Wednesday April 11 no later than 23:59h	14C Apr 13 2018 No class

Department Approval:

Electronically Approved

Date: 2017-12-12 17:31

Course Outcomes

1. Explain the principal mechanisms of lithospheric subsidence
2. Communicate the linkage between the earth's geodynamic system and the origin and evolution of sedimentary basins
3. Explain the main difference between basin types
4. Explain the role played by physical parameters such as rheology, stress, strain, heat flow, mineral phases and radioactive heat generation in the origin and evolution of sedimentary basins
5. Explain how interactions between processes occurring in the mantle, lithosphere, crust and surficial environments impart on the origin and evolution of sedimentary basins
6. Assess the tectonic and climatic processes operating beyond the perimeter of a given basin based on the analysis of its sedimentary fill
7. Explain how the depositional, subsidence history and thermal history of a sedimentary basin dictates the quality and state of its petroleum system
8. List a large number of sedimentary basins in various parts of the world from different geodynamic settings and explain their origin and evolution