

Chemistry 312

Intermediate Analytical Chemistry

Fall 2019

This course is an introduction to modern analytical methods of analysis. Instrumental methods are the workhorse of the modern analytical laboratory and are used by nearly all branches of chemistry and biochemistry. This course will cover atomic spectroscopy, instrumentation, chromatographic theory and practice as well as electrochemical methods.

COURSE INSTRUCTORS:

Professor Cameron Skinner

- Office: Science Pavillion 275-27
- Office phone: 848-2424 ext 3341
- Lab phone: 848-2424 ext 7558
- E-mail: Chem312@concordia.ca
- Office hours any time by appointment.

Senior lab supervisor

Rita Umbrasa

- Responsible for overall operation of the laboratory.

WEB SITE FOR INFORMATION

Moodle, accessible *via* your MyConcordia portal. I will post a Reading List that identifies what is covered in the course/book and other important information there.

SCHEDULED LECTURE PERIODS:

Thursday 6:00 – 8:30 PM, room CC 204

COURSE TEXT:

Required: Principles of Instrumental Analysis, Skoog, Holler and Nieman. Older editions (back to the 5th edition) should also be fine (page numbers won't match but content is same)

GRADING

There will be a single midterm that will cover statistics and chromatography. The final will be comprehensive with an emphasis on atomic spectroscopy. You must complete the avoiding cheating and plagiarism course as well (see below).

GRADING SCHEME

Midterm:	30% or 20%
Final:	35% or 45%
Lab:	25%
Assignments/surprise quizzes:	10%

The final mark is calculated to give you the highest score!

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

It is also important that you realize that:

**You must pass both the lab & class components to pass the course!!
I consider 60% a pass for the lab and 50% a pass for the course.**

Grade range	Letter equivalent	Grade range	Letter equivalent
Lab failure or <35% in the class component	R	67-70	C+
0-50	F	70-73	B-
50-53	D-	73-77	B
53-57	D	77-80	B+
57-60	D+	80-87	A-
60-63	C-	87-95	A
63-67	C	95+	A+

LABORATORIES (room SP 320)

All lab marks count towards your final grade (*i.e.* none will be thrown out). If you cannot hand in a lab report you **MUST** notify R. Umbrasa on or before the report is due! Failure to do so may result in your report being refused.

Late lab reports will be penalized by 10% per day after they are due!

You must e-mail the text of your report to: Chem312@concordia.ca

You must use the lab report template provided on Moodle.

SCHEDULED LABORATORIES

For the Fall 2019 session:

Week of September 9 report to the lab for check-in/sign-up.

Stats lab data will be available on Moodle, due week of September 23

Wet labs/experiments begin week of September 23.

The experiment rotation/due dates will be posted to Moodle.

LABORATORY NOTEBOOK

You **must use a carbon-copy notebook**, they are available in the Bookstore.

Student Laboratory Notebook with spiral binding

Carbonless copies

Made by Hayden McNeil

ISBN 1-930882-74-2

They will sell for about \$20-25 each.

EXAM PREPARATION:

The exams will test both problem solving and general knowledge. For example, you should be able to draw in great detail any system or subsystem studied and to explain its operation. In general, you should know how things work, their advantages, disadvantages and their limitations. In addition, you should be able to critically evaluate a technique and you should be able to choose the best method to solve a particular problem.

PROGRAMMABLE CALCULATORS: NOT ALLOWED IN MIDTERM OR FINAL EXAMS

CHEATING AND PLAGIARISM

Don't do it, don't try it and don't even think about it! If you do, you will have to explain yourself to the Dean.

As part of this course, you are required to attend a Chemistry and Biochemistry seminar on avoiding plagiarism and academic dishonesty. Students that fail to attend the seminar and pass the quiz (100% grade) will receive an incomplete notation on their grade and will have their grade lowered by a full letter grade until they complete the course. **You only need to attend this course once.**

I encourage you to seek out the help of your classmates and to assist each other in solving problems. However, you should prepare your answers, and all of your submitted work, **SEPARATELY**. I will assume that identical answers are the work of a single individual and multiple copies of this work are simple evidence of cheating and plagiarism.

Sign up sheets are available inside SP 201.01 (Departmental office).

Monday Sept. 16, 16:45-17:45, CC 111

Tuesday Sept. 17, 16:45-17:45, HC-155

Tuesday Sept. 17, 20:45-21:45, HB-130

Wednesday Sept. 18, 16:45-17:45, CC-308

Wednesday Sept. 18, 20:45-21:45, HB-130

Thursday Sept. 19, 16:45-17:45, HC-155

Friday Sept. 20, 16:45-17:45, HC-157

The **deadline for the quiz** has been set for Sunday, October 6, 2019 at 11:55pm, i.e., 5 minutes to midnight.

This material is an extract from the Undergraduate Calendar Code of Conduct (Academic)

(<http://registrar.concordia.ca/calendar/16/16.html#16.3.14>)

Offenses:

Any form of **cheating, plagiarism**, personation, falsification of a document as well as any other form of **dishonest behaviour related to the obtention of academic gain** or the avoidance of evaluative exercises committed by a student is an academic offence under this Code.

Any attempt at or participation related in any way to an academic offence is also an offence under this Code and shall be dealt with in accordance with the procedures set out in this Code.

Without limiting the generality of article above, academic offences include, but are not restricted to, the carrying out or attempting to carry out or participating in:

- i. personation — assuming the identity of another person or having another person assume one's own identity;
- ii. **plagiarism — the presentation of the work of another person as one's own or without proper acknowledgement;**
- iii. **the contribution by one student to another student of work with the knowledge that the latter may submit the work in part or in whole as his or her own;**
- iv. multiple submission — the submission of a piece of work for evaluative purposes when that work has been or is currently being submitted for evaluative purposes in another course at the University or in another teaching institution without the knowledge and permission of the instructor or instructors involved;
- v. **the obtention by theft or any other means of the questions or answers of an examination or of any other University-related resource that one is not authorized to possess;**
- vi. the possession or use during an examination of any non-authorized documents or materials or possessing a device allowing access to or use of any non-authorized documents or materials;
- vii. **the use of another person's examination during an examination;**
- viii. communication with anyone other than an invigilator during an examination or the obtention of any non-authorized assistance during an examination;
- ix. tearing or mutilating an examination booklet, inserting pages into a booklet or taking a booklet from the examination room;
- x. the falsification of a document, in particular a document transmitted to the University or a document of the University, whether transmitted or not to a third party, whatever the circumstances;
- xi. the falsification of a fact or research data in a work including a reference to a source which has been fabricated. Falsification shall not include those factors intrinsic to the process of academic research such as honest error, conflicting data or differences in interpretation or judgement of data or of experimental design.

Punishment:

- i. Reprimand the student;
- ii. Direct that a piece of work be re-submitted;
- iii. Enter a failing grade for the piece of work in question or for the course, if applicable;
- iv. Enter a failing grade and ineligibility for a supplemental examination or any other evaluative exercise for the course;
- v. Impose the obligation to take and pass courses of up to twenty-four (24) credits in addition to the total number of credits required for the student's programme as specified by the Dean. If the student is registered as an Independent student, the sanction will be imposed only if he or she applies and is accepted into a programme;
- vi. Impose specified community service at the University of up to ten (10) hours per week for a specified period of time;
- vii. Refer the case to the Academic Hearing Board.