

Chemistry 3373F Course Outline

1. Course Information

Course Information

Chemistry 3373F – [REDACTED]

Labs (one of): [REDACTED]

The labs will be held in [REDACTED]. The schedule for the laboratory experiments is available in the lab manual and on page 3 of this outline.

Description

An intermediate level course in organic chemistry designed to complete the core requirements in organic chemistry. The major topics include: concepts of organic synthesis, radical chemistry, the chemistry of beta-dicarbonyls, amines, heterocycles, cycloadditions and pericyclic reactions.

List of Prerequisites

Chemistry 2273A and 2283G

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department of Chemistry Counsellors and Science Academic Advisors) 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.

2. Instructor Information

Instructors	Email	Office	Phone	Office Hours
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Students must use their Western ([@uwo.ca](mailto:uwo.ca)) email addresses when contacting their instructors.

3. Course Syllabus, Schedule, Delivery Mode

Learning objectives

1. To predict the chemical reactivity (mechanism and final products) of compounds containing aldehydes, ketones, amines, carboxylic acids and their derivatives, and organometallics.
2. To predict the mechanism and products (including stereochemical outcomes and applications of basic molecular orbital theory) of the reactions of dienes, including pericyclic reactions.
3. To apply basic nomenclature rules to name the above classes of compounds.
4. To design simple multistep syntheses involving the above functional groups.
5. To perform chemical reactions safely involving the above functional groups using organic synthetic laboratory techniques.
6. To analyze and interpret the results of organic chemistry laboratory work (e.g., spectral data) and compile these into a concise report.

Topics covered (chapters pertain to the course textbook)

1. Chapter 19: Aldehydes and ketones
2. Chapter 20: Carboxylic acids and their derivatives
3. Chapter 21: Alpha carbon chemistry: Enols and enolates
4. Chapter 16: Conjugated Pi systems and pericyclic reactions
5. Chapter 22: Amines
6. Chapter 23: Introduction to organometallic compounds (time permitting)

We will spend about 2 weeks on each topic.

Key Sessional Dates

Classes begin: September 5, 2024

Fall Reading Week: October 12 – 20

Classes end: December 6, 2024

Exam period: December 9 – 22, 2024

Week of	Experiment	Report Due
Sept. 16	Exp. 1: The Benzoin Condensation of Benzaldehyde	
Sept. 23	Exp. 2: The Synthesis of Benzil Exp. 3: The Synthesis of <i>meso</i> -hydrobenzoin	Exp. 1
Sept. 30	No labs	
Oct. 7	Exp. 4: The Synthesis of Tetracyclone Exp. 5: The Synthesis of Dilantin	Exps. 2 & 3
Oct. 14	No Labs	
Oct. 21	Exp. 6: Fischer Esterification of a Chiral Alcohol Exp. 7: Transesterification: Synthesis of Biodiesel	Exps. 4 & 5
Oct. 28	Exp. 8: Synthesis of Dimedone	Exps. 6 & 7
Nov. 4	Exp. 9: Diels-Alder Syntheses of Polycyclic Compounds	Exps. 8
Nov. 11	Exp. 9: Diels-Alder Syntheses of Polycyclic Compounds	
Nov. 18	Exp. 10: Synthesis of a Secondary Amine via Reductive Amination	Exp. 9

Nov. 25	No Labs	Exp. 10
Dec. 2	No Labs	

4. Course Materials

Text and other Purchases:

Organic Chemistry by Klein, 4th edition

Laboratory Manual for Chemistry 3373 and lab.

Hayden-McNeil Organic Chemistry Laboratory Notebook for in-lab experiments

(optional, but highly recommended) Molecular Model Set: Darling.

Safety glasses with side panels (required if you do not already own a pair) and a full length lab coat

Class notes will be posted to OWL: <https://westernu.brightspace.com/>

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Technical Requirements

Stable internet connection, computer with working microphone and webcam, if you would like to participate in office hours by zoom.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Lab mark	20%	
Mid-term Tests	30%	Two midterms to be held during class on October 4 and November 8 (15% each)
Quizzes	10%	Best two out of three (5% each). These will be held in class on Sept 20, Oct 23, and Nov 22.
Final Exam	40%	

Topics covered on each test, quiz, and the final examination will be posted closer to the date.

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- The final examination (Defined by policy)

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Evaluation Scheme for Missed Assessments

Midterm tests

If a mid-term test is missed for valid reasons, the 15% will be transferred to the final examination. Missing a test for a non-validated reason will result in a grade of zero for that midterm. There are NO alternate mid-term tests.

Quizzes

If one quiz is missed for validated reasons, the other two quizzes will automatically be used to calculate the mark (5% each). If only one quiz is written and the other two excused for validated reasons, it will count for 5% of the mark and the other 5% will be transferred to the final exam. If all quizzes are missed for validated reasons, the 10% quiz component will be transferred to the final exam. Missing a quiz for a non-validated reason will result in a grade of zero for that quiz. There are NO alternate quizzes.

Labs and lab reports

Missed sessions or reports must be for a validated reason. If the lab and corresponding report are missed for a validated reason, the weighting of the other reports will be adjusted so that the lab remains at 20% of the final mark. In the absence of a validated reason, late laboratory reports will be penalized 10% per day. After the reports have been marked and returned (no sooner than 6 days after the submission deadline), no further submission of reports will be permitted and either a mark of zero will be assigned (non-validated reason), or the weighting of the other lab reports will be adjusted as per above (validated reason for the late report). If submission of the report is required to fulfill the requirements for passing the course and your academic accommodation or consideration extends beyond the date that graded reports are returned, you will have to apply for a grade of INC and submit the miss lab report the next time the course is offered.

Absences from Final Examinations

When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

Essential Learning Requirements

Even when Academic Considerations are granted for missed coursework, the following are deemed essential to earn a passing grade.

To pass you need i) a mark 50%, **and** ii) 50% or greater in your laboratory mark **and** iii) a passing grade in the non-laboratory component of the course. The final exam must be written. There are 8 laboratory sessions and 9 reports. To pass this course, you must attend at least 6 lab sessions and submit 7 reports.

In the event that the above conditions are not satisfied, a grade not higher than 40% will be assigned, even if the calculated grade is higher. Exception: Student who, for medical or compassionate reasons have been granted Incomplete Standing (INC grade) by the Dean's Office will be required to complete the missed work the next time the course is offered.

Coursework with Assessment Flexibility

By policy, instructors may deny Academic Consideration requests for the following assessments with built-in flexibility:

Flexible Completion

Quizzes. This course has 3 quizzes, and the 2 quizzes with the highest marks are counted towards your final grade. Should extenuating circumstances arise, students do not need to request Academic Consideration for the first missed quiz. Academic consideration requests will be denied for the first missed quiz. Academic Consideration requests may be granted when students miss more than one quiz missed quizzes and the marks for the 2 and 3rd missed quizzes will be reweighted to the final exam.

6. Additional Statements

Religious Accommodation

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as

early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://www.edi.uwo.ca>.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf.

Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

Permitted aids for tests, quizzes, and the final exam

Students will be permitted to use model kits, a basic calculator, and a periodic table. Any other information that students require will be provided by Dr. Gillies.

Use of electronic devices

Only basic scientific calculators are permitted on all tests and exams. All other electronic devices (cell phones, laptops, tablets, cameras, etc.) are prohibited. Students found in possession of prohibited devices will receive a mark of ZERO for the entire test or exam.

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:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Only in the event of a health lock-down, tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

<https://remoteproctoring.uwo.ca>.

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic-related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at Learning Development and Success (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.

This course is supported by the Science Student Donation Fund. If you are a student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Advising site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at ssc@uwo.ca.