

Course ID:	Course Title:	Winter 2020
BIO 493	Independent Research Study in Biology I	Prerequisite: 15 credits of senior BIO courses with a current GPA of 3.0 or higher and an approval of an independent research project application
		Credits: 3

Class Information		Instructor Information		Important Dates	
Days:	To be determined by student and supervisor	Instructor:	Dr. Chris Wang	First day of classes:	Tue, Jan 7
Time:	To be determined by student and supervisor	Email:	Chris.Wang@ambrose.edu	Last day to add/drop, or change to audit:	Sun, Jan 19
Room:	N/A	Phone:	(403) 410-2000 ext. 6910	Last day to request revised exam:	Mon, Mar 9
Lab/ Tutorial:	N/A	Office:	L2113	Last day to withdraw from course:	Fri, Mar 20
	N/A	Office Hours:	Monday and Friday: 2 PM – 3 PM, or by appointment	Last day to apply for coursework extension:	Mon, Mar 30
Final Exam:	N/A			Last day of classes:	Thurs, Apr 9

Course Description

This course is a one-semester research project. Students will choose a research topic of choice, perform a literature review, perform scientific experiments, data analysis, and complete a research paper and presentation on the work.

Expected Learning Outcomes

At the end of the course, students should have acquired the following skills:

1. Students will gain a greater understanding of fundamental biological principles
2. Student will learn the process of developing and experimental protocol and carrying out the experimental process
3. Students will learn the laboratory techniques essential to research in biology.
4. Students will design and carry out a research project and be able to present this in written and oral formats.

Textbooks

No textbook required.

Topic specific research papers will be used.

Course Schedule:

Students will choose a research topic of choice, perform a literature search and literature summary before writing up a research proposal (identifying a new research question and describing an experimental protocol). Pilot experiments will be completed by the student.

Tentative Guidelines for Schedule:

Jan. 20th - research projects should be chosen (proposals for project must be approved by the supervisor)

Feb. 15th - research proposal due

- abstract due for Ambrose Research Day (ARC)

March 13th - all experimental work should be completed and data collected

March 18th - review the ARC presentation with your supervisor

March 25th - Ambrose Research Day – oral presentation

April 9th - final research paper is due

The research proposal should contain the following elements:

- Abstract
- Background research
- Literature review of current research related to the project
- Proposed Research Question and Purpose
- Proposed methodology and materials / Research Design / Timeline
- Proposed analysis methods and statistical methodology
- Pilot study results
- References

The research proposal should be 5-10 pages, double spaced, in length

As part of this course, you will write a 10-15 pages, double spaced final research report and make a presentation at Ambrose Research Day.

Attendance:

While no formal lectures will be involved, regular meetings with the supervisor is required (weekly is suggested). This course requires you to be working independently – but meetings will ensure that you don't fall behind.

- the student is required to spend a minimum of 90 hours/semester on his/her one-semester, independent research project
- the student is required to present his/her work in the Ambrose Research Conference (ARC) at the end of March 2019
- the student is required to have a short, monthly or bi-monthly meeting with the independent research study supervisor

Evaluation Methods:

Evaluation Methods	Due Date	Weighting
Research Proposal	Feb. 15 th	20%
Research Components: - lab notes - literature review - experimental design	Apr. 9 th	20%
Final Report	Apr. 9 th	40%
Oral Presentation	Ambrose Research Day (March 25, 2020)	20%
Total		100%

Grade Summary:

The available letters for course grades are as follows:

Grade	Percent	Grade Point Value	Description
A+	96-100	4.00	Outstanding
A	92-95	4.00	Excellent - superior performance, showing comprehensive understanding of subject matter.
A-	88-91	3.70	
B+	83-87	3.30	
B	78-82	3.00	Good-clearly above average performance with knowledge of subject matter generally complete.
B-	73-77	2.70	
C+	68-72	2.30	
C	64-67	2.00	Satisfactory – basic understanding of the subject matter. Grade point average below 2.00 is not sufficient for promotion.
C-	60-63	1.70	Minimum grade required if needed as a prerequisite course
D+	55-59	1.30	
D	51-54	1.00	Minimal pass – marginal performance; generally insufficient preparation for subsequent courses in the same subject.
F	<50	0	Fail – unsatisfactory performance or failure to meet course requirements.

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Other:

Plagiarism:

Plagiarism is a very serious academic offence that involves presenting work in a course as if it were the result of one's own study and investigation when, in fact, it is the work of someone else. Plagiarism takes place when:

- an essay or other work is copied from another source, including your peer's work, and submitted as one's own
- parts of a work, including words, ideas, images or data, are taken from a source without acknowledgement of the originator
- work presented for one course is also submitted for another course without prior agreement of the instructors involved
- another person prepares the work that is submitted as one's own
- substantial editorial or compositional assistance from another person is received on work that is submitted as one's own

Ambrose University Academic Policies:

Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

Exam Scheduling

Students, who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student to use a

laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Note: Students are strongly advised to retain this syllabus for their records.