

Course ID:	Course Title:	Fall 2019
BIO 345	Research Methods in Biology	Prerequisite: BIO 131 & BIO 133
		Credits: 3

Class Information		Instructor Information		Important Dates	
Days:	Tues/Thurs	Instructor:	Dr. Megan Hallam, PhD	First day of classes:	Wed, Sept 4
Time:	4:00 – 5:15 pm	Email:	mhallam@ambrose.edu	Last day to add/drop, or change to audit:	Sun, Sept 15
Room:	Airhart 1 (A1085-1)	Phone:	403-410-2000 ext 6905	Last day to request revised final exam:	Fri, Nov 1
Lab/Tutorial:	-	Office:	L2107	Last day to withdraw from course:	Mon, Nov 18
	-	Office Hours:	Open door policy, or by appointment	Last day to apply for coursework extension:	Mon, Nov 25
Final Exam:	Friday Dec 13, 1:00-3:00, A2210			Last day of classes:	Wed, Dec 11

Course Description

An introduction to research in Biology with an emphasis on understanding the research process, including literature searches, experimental design, data collection, basic statistical knowledge, and its relationship to critical thinking.

Expected Learning Outcomes

It is the aim of the course that students acquire the following skills:

1. Understand scientific method.
2. Conduct a basic scientific literature search and synthesize a review of the literature for a chosen topic.
3. Critically appraise published literature, considering all aspects of research design.
4. Evaluate and understand ethical considerations in scientific research.
5. Understand and apply basic statistical concepts to data sets.

Textbooks

No required textbook.

Recommended textbook: Writing in the Biological Sciences: A Comprehensive Resource for Scientific Communication.
Angelika H. Hofmann

Course Schedule

Tentative, subject to change.

Date	Topic	Chapter in Hofmann
Sept 5	Introductions	
Sept 10	Literature searches & library resources – BRING LAPTOP	4
Sept 12	Reporting research Knowledge, sources	8, 13
Sept 17	Structured abstracts	
Sept 19	Types of Data, Error	
Sept 24	Study Design, Sampling	
Sept 26	NO CLASS, Spiritual Emphasis Day	
Oct 1	Media & Research Presentations	
Oct 3	Media & Research Presentations	
Oct 8	Bias	
Oct 10	Causality, Review	
Oct 15	Midterm	
Oct 17	Full Article Critique	10, 6
Oct 22	Critiquing Scientific Papers	
Oct 24	Ethics	
Oct 29	Ethics	
Oct 31	How to do a Lit Review	11

Nov 5	Normal curve, central tendency, skewness	5
Nov 7	TBA	
Nov 12	NO CLASS, Reading Week	
Nov 14	NO CLASS, Reading Week	
Nov 19	Literature Review Presentations	
Nov 21	Literature Review Presentations	
Nov 26	Standard deviation, SEM, outliers	
Nov 28	Z-scores, significance	
Dec 3	Parametric Statistics	
Dec 5	Non-parametric statistics	
Dec 10	Review	

Requirements:

Structured Abstract Article, September 17 - 5%

Structured Abstract, September 24 - 5%

Media & Research Presentations, October 1 - 10% (Presentations will be October 1 and 3, all PowerPoints are due October 1)

Midterm Exam (in class), October 15 - 17%

Full Article Critique, October 31 - 15%

Literature Review Presentation, November 19 - 10% (Presentations will be November 19 and 21, all PowerPoints are due November 26)

Literature Review, December 3 - 19%

Final Exam (Cumulative), December 13, 1:00 – 3:00 - 19%

Written portions of assignments should be completed in accordance with the following criteria:

- Typed using a word processor
- Double spaced
- Font style: Times New Roman, Arial or similar
- Font size: 12-point

For assignments requiring that a hard copy be turned in the following additional criteria should be followed:

- Include Title Page following posted example (includes the name of the assignment, student name, class, professor's name and date)
- Stapled in the top left hand corner
- Students may choose whether to hand in hard copies single- or double-sided

Unless stated otherwise, all assignments are to be done using full sentences and proper spelling and grammar. Any spelling, grammatical and/or formatting errors will result in a 0.5 point deduction per unique error on the assignment.

All assignments must be handed in electronically using Moodle in .doc or .docx format, or .ppt or .pptx when appropriate. Moodle cannot accept Pages or other kinds of files from Mac computers. Certain assignments will also require that a paper copy be submitted in class, these include: Full Article Critique (Nov 9), Literature Review (Nov 30). If a paper copy or digital copy (when both are required) is not handed in, 3 marks will be deducted.

Turnitin will be used for both presentations, the Full Article Critique and Literature Review Assignments. This web-based tool will compare your work with numerous sources, including your fellow students, to check for plagiarism. Please ensure you are handing in your own original work and properly citing appropriate sources. A report will be provided to you on Moodle on the due date of the assignment.

Late assignments: When assignments are due on a Thursday, late assignments will be accepted until the beginning of class the following Tuesday. Late Presentations may be handed in/presented within one class of your originally scheduled presentation. Late marks will be deducted until the presentation is submitted on Moodle. Late Literature Reviews will only be accepted until the beginning of class on Thursday November 28 as the written review must be handed in prior to the oral presentation. For each day an assignment is late 10% will be deducted from the grade earned on the assignment. Late assignments should be emailed to the instructor, and if a hard copy of the assignment is required, this should be handed in as well as soon as possible, late marks are deducted until the submission of the digital copy.

Attendance:

As this course does not have a required text, attendance at lectures is STRONGLY recommended and will help ensure success on course exams and assignments. It is the student's choice whether to attend class or not, and their responsibility to go over material covered in missed classes. The instructor must be notified if a student will not be present for an exam or to hand in a hard copy of an assignment. If absences for an extended period of time occur the instructor should be notified. An absence for an exam requires that a note be provided from a medical authority before the student may complete the test.

Grade Summary:

The available letters for course grades are as follows:

Letter Grade	Percentage	Description
A+	95-100%	
A	91-95%	Excellent
A-	88-91%	
B+	83-88%	
B	78-83%	Good
B-	73-78%	
C+	68-73%	
C	64-68%	Satisfactory
C-	60-64%	
D+	55-60%	
D	51-55%	Minimal Pass

F Below 50% Failure

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 Policy:

It is your responsibility to ensure that all work you submit is original and that credit is given to ideas that are not your own. See below for Ambrose's statement defining plagiarism and outlining its consequences.

Examples of plagiarism include, but are not limited, to:

1. Copying an assignment from someone else and submitting it as your own work.
2. Working with a friend and writing down identical answers, whether you understand the content or not, and submitting the assignments separately.
3. Quoting directly from a source without supplying quotation marks or a citation.
4. Quoting directly from a source without supplying quotation marks, even if it is referenced.
5. Submitting an assignment in which >30% of the content is properly quoted; that is, at least 70% of the words in an assignment need to be your own. A general rule of thumb: for every line quoted, there should be three lines of your own material explaining that quote.
6. Submitting the same or similar assignment for more than one class, or more than one iteration of the same class.

Penalties for plagiarism

For a first offense in any one of my classes, a zero on the assignment with no chance of rewriting it, and a note in your academic file.

For a second offense in any one of my classes, a zero in the class, and recommendation for a note on your transcript.

For a third offense in any one of my classes, a zero in the class and a recommendation for expulsion from the university.

Note that Ambrose has an appeals process in place if you feel that allegations of plagiarism are unfounded; these are for final marks only, and not for individual assignments.

Note that my record of a student's past plagiarism does not reset with each semester.

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.