



SYLLABUS FOR HONORS NATURAL SCIENCE 3C (HON-3C-52578)	
Fall 2021	Reedley College
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Course Description

The field of natural sciences is one of the most dynamic and adaptive in modern sciences. The goal and purpose of this course is to help you explore, build, and develop an interest in the research process used to study fundamental processes that form the basis of biological life. Advances in knowledge and methods from research have been used in all aspects of our lives, revolutionizing medicine, agriculture, and other fields in ways that change and impact our daily lives. Important scientific, social, and ethical decisions will be critical when we are faced with decisions and interpretation of research data. The course outcomes are designed to help you *understand and apply* (not just memorize) natural science concepts, and to help you think in an analytical and critical way about contemporary problems in the natural sciences. By nature, research is ever changing and constantly evolving with new discoveries and technology. Therefore, it will not be possible to cover the entire field of any topic during this (or any) course, so we will concentrate our efforts on exploring selected themes for study.

Learning with Canvas

Course resources, including all lecture notes and assignments, are available 24 hours a day, 7 days a week through the Canvas Learning System.. All course announcements, assignments, rubrics, etc. will be available so there should be no confusion on what is expected or how your performance will be evaluated. Check the Canvas site *daily* so that you are aware of any course changes.

Student Learning Outcomes and Assessment

The interdisciplinary nature of natural sciences integrates many aspects of biology, chemistry, and other disciplines. Achievement of course objectives will require you to develop content knowledge, creative problem solving, and critical thinking skill. This will be accomplished by creating a rigorous and engaging learning environment where diverse opinions and experiences and logical reasoning are valued and growth is encouraged.

All Objectives

To expose the student to the field of natural sciences and the general principles of scientific study as they relate to humans. Students completing the course will have gained the following:

1. Experience an integrated academic atmosphere to stimulate intellectual curiosity and university-level discussion on a topics or theme.
2. Build a background in a natural and/ or biological science that is broad enough to contribute to a multi discipline research project.
3. Develop interdisciplinary hypothesis and question about a topic with guidance from the instructor.
4. Synthesize information and knowledge using skills obtained from separate disciplines within the Natural and Biological Sciences.
5. Practice critical thinking skills in evaluating and presenting research.
6. Revise “first thoughts” or original hypothesize considering deep research and in collaboration with the instructor, classmate, and experiments in the field.
7. Lead/participate in discussion to investigate question and concerns regarding the identified research topic.
8. Write appropriately documented essays which define, evaluate, interpret, and argue interdisciplinary topics.

Major Assignments

Descriptions	Percentages
Assignment 1	5%
Assignment 2	5%
Assignment 3	5%
Assignment 4	5%
Assignment 5-Research Proposal	10%
Peer Review	20%
Poster	30%
Presentation	20%

Course grades will be based both on presentations and class participation. Students are expected to learn to ask questions and exchange ideas freely. Students should be prepared to ask at least one good question by the end of each presentation. While grades lower than B are very rare in this course (after all, you are all honor students!), a solid A is given only for exceptional performance. Don't count on it.

Teaching Philosophy and Course Expectations

Learning new concepts occurs most effectively when it is built on foundation of knowledge already possessed. (Ramage & Stokes, 2012). Learning is a deliberate and intentional process, one that involves the use of critical thinking, dedication, determination, information, and responsibility:

1. Critical thinking. This course serves to develop your critical thinking abilities. Students that analyze, infer, evaluate, and make reasoned judgments perform better in college, daily choices, and achieve greater success. Developing critical thinking skill should be a goal of every student in this course.
2. Dedication and determination. Success in this course will require a lot of your dedication and time. If you aim for a high degree of understanding, that is what you will achieve. Expect to invest significant effort, i.e., at least 3-6 hours per week of time to research and read about a topic you are passionate about. Depending on your science background, you may need to spend time learning extra background on scientific topics. Work on your materials and meet with the instructors regularly, and use this time to discuss and receive feedback from the instructors and your classmates.
3. Be informed. It is common to see scientists utilize scientific information to manipulate the behaviors and decision-making of participants in ways that may not always appropriate. If you don't understand the scientific basis of a research paper, you can't make an informed decision about it. Be curious and take initiative to read and dig out more information on the topic of your choice.
4. Take responsibility. The amount of responsibility you place on yourself in any course will be proportionally related to your academic and eventual professional success. Whether you choose to do excellent or minimal work is up to you. We will not disrespect you by giving a grade you did not earn. Oftentimes we must strike a balance with family, work, and school, therefore make sure to take responsibility, learn from mistakes and rise up stronger. The best learning comes from making mistakes. The goal of this course is to explore your learning, research, and interests.

Explanation of Assignments and Activities

Research Essay

Each team will collect data to analyze and orally present in a public forum using a formal research poster. Each poster must include an introduction supported by primary literature, a research question, a null and alternative hypothesis, predictions, an experimental design that includes materials and methods, results that are quantitative (graphs and/or tables as appropriate with captions) and qualitative (general observations and pictures with captions), a discussion that summarizes the purpose of the study, key results, and explains their implications and significance in relation to research literature, a conclusion that answers the research question, and a bibliography of sources cited.

Journal Presentation

Each student is required to give two to three oral presentations (chalk talks) during the semester. Presentations are to be based on research journals they read for their project.

Rough Draft

Science is a collaborative activity, with colleagues working together to achieve what individuals working in isolation cannot. Research teams will be used similarly in this course. Each person in a research team will evaluate the relative contributions of their peers at the middle and end of the course to give proper credit where credit is due (or not, as appropriate). Performance increases between the first and second peer evaluations will influence individual improvement scores. Rubric will be distributed during the beginning of the semester.

Professional Behavior is expected ALWAYS

College Policies The college has several policies that you will be expected to adhere to in my course. The Policy on Students with Disabilities, the University Honor Code, the Policy on Cheating and Plagiarism, a statement on copyright, and the university computer requirement, portions of which are below, can all be found in the Student Handbook (Policies and Regulations) and Class Schedule.

Accommodations:

If you have a verified need for an academic accommodation or material in alternate media (i.e. Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible. Students with Disabilities/Special Accommodations: Any student in need of an accommodation due to a disability

is encouraged to provide the instructor with their notification of authorized services form from DSP&S and consult with the instructor immediately so that arrangements can be made.

Writing Requirement

Learning Objectives:

After completing the writing requirement, you will be able to

- Research scientific facts to help you formulate arguments pro and contra a case defined in the assignment
- Formulate arguments pro and contra a case defined in the assignment
- Formulate a conclusion based on your assignments pro and contra
- Critically evaluate your own writing and that of other students

Some ground rules

- **Word Counts**
 - You will write two reports for this course. Each writing assignment has a minimum word count in order to meet the University writing requirement for this course. Failure to meet the minimum word count on either assignment will result in failing this course.
- **Improving your writing through feedback**
 - Both reports require you to write a draft and a final version. You will receive feedback on your draft to help you write a better final version.
- **Improving your writing through peer review**
 - For both reports, you will read the drafts and final reports of your fellow students and provide meaningful feedback on their writing. Evaluating other people's report teaches you what makes a good or bad report. Use this experience to improve your own writing.

Submission Requirements and Guidelines

- Drafts and Final reports are required to be uploaded to TurnItIn on Canvas the night before class at 11:59 PM.
- Submissions receiving an originality score of more than 30% cannot be accepted.
- Late submissions CANNOT earn any points. If a late submission is made, 0 points will be awarded.
- Late submission cannot participate in the peer feedback or peer review process, and so will lose the participation points for those activities.

College Policies

The university has several policies that you will be expected to adhere to in our course. The **Policy on Students with Disabilities, the University Honor Code, the Policy on Cheating and Plagiarism, a statement on copyright,** and the **university computer requirement,** portions of which are below, can all be found in the University Catalog (Policies and Regulations) and Class Schedule.

Cheating and Plagiarism: WE DO NOT TOLERATE CHEATING. PERIOD. Most of you are entering into the health care field and could harm or seriously injure other human beings if you do not know the basic information in this course. The University policy reads, "Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Typically, such

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acts occur in relation to examinations. However, it is the intent of this definition that the term 'cheating' not be limited to examination situations only, but that it include any and all actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means.

Any student caught cheating or plagiarizing will be subject to the Reedley College disciplinary procedures (review the Reedley College catalog section on academic dishonesty). Electronics of any kind are not permitted during exams and will result in an automatic zero for that exam.

Students with diagnosed disabilities should contact the Disabled Students Programs and Services' (DSP&S). Please give me a copy of the letter you receive from DSP&S detailing class accommodations you may need. If you require accommodation for test-taking please make sure I have the letter no less than three days before the test. If you have a need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the

Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

HELP AND TUTORIAL SERVICES

If you should experience difficulty understanding the material presented in the class or lab, please see your instructor in her office at the earliest possible date, either during scheduled office hours or by appointment.

If you are struggling in the class, please go to the tutorial center for assistance. "With this statement on my course syllabus, I am referring each of my enrolled students in need of academic support to tutorial services. Referral reason: Mastering the content, study skills, and basic skills of this course is aided by the use of trained peer tutors".

If you should experience difficulty understanding the material presented in the class or lab, please see your instructor in her office at the earliest possible date, either during scheduled office hours or by appointment.