# Course Syllabus

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**BIO1320 - MODERN BIOLOGY** - Online Correspondence Course

**Instructor:** Dr. Rachel Davenport

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**Virtual Office Hours**: on Zoom by appointment

> *I'm always happy to meet with students - just email me and we'll set it up*

*This is a self-paced course and you can work as quickly or as slowly as you want, as long as you complete all requirements within six months.*

**Course Description:** BIO 1320 provides the non-science major a strong and diverse background necessary to understand the structural and functional diversity of organisms while providing students with basic scientific and biological principles. Topics include basic and biological chemistry, cell structure and processes, and DNA and genetic basics. This course partially fulfills the Natural Science Core Component. It may not be credited toward a biology degree.

It is important for all of us to have a good working knowledge of biology for day-to-day life. Increasingly, biology-related topics are appearing in newspapers, magazines, on television, and in politics. Over the course of your life you will make important decisions regarding biological issues, such as voting for politicians with specific stances (Should we produce and eat genetically modified organisms?), influencing your community to take a stance on various issues and policies (Should we allow some amount of stem cell use or cloning?), and by serving jury duty where biology-based forensics may make or break a case. Further, the decisions you make for your own life, such as those that are health and medicine related, are all based on an underlying understanding of biology. Biology affects every aspect of our daily lives whether we are immediately aware of it or not.

**Course Objectives:**

1. To examine the nature of science, the scientific method, & hypothesis testing
2. To examine cell diversity, structure, & function
3. To examine basic chemical principles, the nature of organic molecules, & the function of chemicals within cells

4. To examine the role of energy in maintaining life & learn how cells acquire & use energy
5. To examine the structure & function of DNA especially as it pertains to protein synthesis
6. To examine the principles of inheritance (genetics) & explore patterns of inheritance in humans
7. To examine the principles & regulation of cell division, & the consequences of malfunctions in the regulation of cell division (e.g. cancer)
8. To examine aspects of biotechnology & discuss the role that biotechnology plays in our world, including an exploration of the ethics & consequences of emerging technologies
9. To examine the anatomy & physiology of the human reproductive system

**Learning Outcomes**: Upon completion of the class, students should show competency in each objective listed above. Students should be able to demonstrate understanding of basic principles of biology, have a conversational knowledge of the principles behind breaking news in biological sciences, and understand metabolism, physiology, and genetics sufficient to make wise decisions regarding health and nutrition. Students should also have an improved ability to think critically and to make informed decisions as a member of society.

**Required Materials:** I worked hard to make this course with all OER materials, which are free of cost to students. However, you will need access to reliable internet to complete assignments efficiently, especially those that are timed.

**Academic Honor Code:** Students are expected to uphold the Texas State University Academic Honor Code (**http://www.txstate.edu/honorcodecouncil/Academic-Integrity.html (http://www.txstate.edu/honorcodecouncil/Academic-Integrity.html)** ). **All forms of academic dishonesty are extremely serious offenses**. Note that YOU are responsible for knowing what counts as academic dishonesty- ignorance is not an excuse. Any student caught in an act of academic dishonesty will automatically receive a zero on the relevant assignment and will likely be given a failing grade (“F”) for the entire course. In accord with the University Academic Honor Code, students will also be reported to the Honor Code Council.

**Special Needs:** I am committed to making educational opportunities available to all students. If you have special needs as documented by the Office of Disability Services (ODS), please contact me at the beginning of the semester. If you are not registered with ODS but have special needs to be addressed (e.g. test anxiety, medical conditions, etc.), please let me know early so we can work together to figure out how you can best succeed in this course.

**Assessments**

Online assignments: Follow the assignment flow below to ensure that you complete everything in a logical order.

Exams: Detailed instructions on exams are on Canvas under Modules. There are four regular exams plus one cumulative final. Each student will be allowed to drop the lowest exam score and the four highest exam scores will count towards the final grade. If you are satisfied with the first four exam grades, you may skip the final and that will be the exam grade that is dropped.

**Grading**

See the schedule below for the required assignments and point values. Each exam is worth 100 points, two Canvas assignments (intro & final survey) are worth 10 points each, video quizzes are worth 5 points each, and chapter homeworks are worth 10 points each. Thus you have the opportunity to earn 600 points total.

537-600 points (90-100%) = A

477-536 points (80-89%) = B

417-476 points (70-79%) = C

357-416 points (60-69%) = D

356 or less (59% or less) = F

**Miscellaneous**

- All educational work that I produce for this course, including PowerPoint slides, exam reviews, quiz and exam questions, etc. is automatically under my copyright ownership. The sharing of these materials by any student in any form, especially sharing publicly via the internet, is expressly forbidden and a violation of copyright law. You may use the materials that I make available for your personal use, but you may not make those materials available to anyone else.
- **If you are ever having trouble with anything, please reach out. If I can help, I will!** At minimum, I can put you in touch with the appropriate campus resources.

**Assignment Flow**

Use this schedule as a checklist, checking off items as you complete them to ensure that you stay on track. See Canvas Modules for detailed instructions on each assignment and for extra resources.

## Unit 1

### Introduction & Welcome

- read over the syllabus and FAQ and explore our Canvas site
- complete the introductory quiz with a perfect score *10 points*

### Chapter 1. The Scientific Study of Life

- use the chapter 1 PowerPoint to direct your learning
- watch the chapter 1 video & take the video quiz *5 points*
- complete the chapter 1 Homework *10 points*

### Chapter 2. The Chemistry of Life

- use the chapter 2 PowerPoint to direct your learning
- watch the chapter 2 video & take the video quiz *5 points*
- complete the chapter 2 Homework *10 points*

### Chapter 3. Biological Molecules

- use the chapter 3 PowerPoint to direct your learning
- watch the chapter 3 video & take the video quiz *5 points*
- complete the chapter 3 Homework *10 points*

### EXAM 1 on Chapters 1 - 3 *100 points*

- use the exam review as a guide when studying for this

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## Unit 2

### Chapter 4. Cell Structure

- use the chapter 4 PowerPoint to direct your learning
- watch the chapter 4 video & take the video quiz *5 points*
- complete the chapter 4 Homework *10 points*

**Chapters 5. Cell Membranes**

- use the chapter 5 PowerPoint to direct your learning
- watch the chapter 5 video & take the video quiz *5 points*
- complete the chapter 5 Homework *10 points*

**Chapter 6. The Energy of Life**

- use the chapter 4 PowerPoint to direct your learning
- watch the chapter 4 video & take the video quiz *5 points*
- complete the chapter 4 Homework *10 points*

**EXAM 2 on Chapters 4 - 6** *100 points*

- use the exam review as a guide when studying for this

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**Unit 3**

**Chapter 7. DNA Structure & Gene Function**

- use the chapter 7 PowerPoint to direct your learning
- watch the chapter 7 video & take the video quiz *5 points*
- complete the chapter 7 Homework *10 points*

**Chapter 8. DNA Replication & Mitosis**

- use the chapter 8 PowerPoint to direct your learning
- watch the chapter 8 video & take the video quiz *5 points*
- complete the chapter 8 Homework *10 points*

**Chapter 9. Sexual Reproduction & Meiosis**

- use the chapter 9 PowerPoint to direct your learning
- watch the chapter 9 video & take the video quiz *5 points*

- complete the chapter 9 Homework *10 points*

**EXAM 3 on Chapters 7 - 9** *100 points*

- use the exam review as a guide when studying for this

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**Unit 4**

**Chapter 10. Patterns of Inheritance**

- use the chapter 10 PowerPoint to direct your learning
- watch the chapter 10 video & take the video quiz *5 points*
- complete the chapter 10 Homework *10 points*

**Chapter 11. Biotechnology**

- use the chapter 11 PowerPoint to direct your learning
- watch the chapter 11 video & take the video quiz *5 points*
- complete the chapter 11 Homework *10 points*

**Chapter 12. Human Reproduction**

- use the chapter 12 PowerPoint to direct your learning
- watch the chapter 12 video & take the video quiz *5 points*
- complete the chapter 12 Homework *10 points*

**EXAM 4 on Chapters 10 - 12** *100 points*

- use the exam review as a guide when studying for this

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**Wrap Up**

- complete the final survey *10 points*
- decide whether to take the optional final exam

### ***Optional*** **Cumulative Final Exam** *100 points*

- use the final exam review as a guide when studying for this