Human Biology Syllabus
BIOL F100X
4 credits, in person class
Spring 2019

Instructor: Dr. Kate Doran
kdoran@alaska.edu
479-0486 or 907-888-8210

Catalog Description
Survey of biological principles as applied to human anatomy, physiology, genetics, and health. Special Note: Intended for non-science majors.

Detailed Course Description
Human Biology is designed to be a high interest lecture and lab course for non-majors that emphasizes the science of human biology. The majority of the class will be devoted to the physiology of the human body, its adaptations to the environment, and applications to health. You will also learn about the strengths and limitations of scientific methods in studying the human body and some of the ethical concerns that accompany new knowledge and medical techniques. A major part of the lab will be devoted to practicing college biology laboratory skills, writing about your observations and understanding, and practicing techniques to improve your science study skills.

Class Meeting Times: Monday and Wednesdays, 6 pm - 9 pm.

Class Location: Murie Building, Room 303. Be prepared for a lecture and lab assignment in each class session. Parking is available nearby and is free during class time.

Office Hours: Monday and Wednesdays, 5 pm - 6 pm or by appointment.

Prerequisites: ENGL F111X or higher, DEVM F105 or higher, or permission of instructor.

Text

Students do their best when they find the time to read the text BEFORE each lecture, even if they don’t understand it perfectly. This strategy prepares the mind for the new information and suggests the questions to ask for a deeper understanding of the content. DO NOT buy the lab manual that accompanies the text, all lab materials will be provided by the instructor.

Student Learning Outcomes
- Apply an understanding of human biology to human health issues.
- Describe basic cell and tissue organization and the organ systems of the human body.
- Explain how multiple body systems interact to maintain homeostasis.
- Begin to use university laboratory skills to answer questions about human physiology.
- Develop your ability to express your questions and understanding of human biology in oral and written forms.
- Become familiar with the methods used for acquisition and expansion of scientific knowledge through laboratory and clinical studies.
- Apply a basic knowledge of the central dogma of molecular biology to an understanding of human inheritance, mutations and advances in biotechnology.
- Give examples of the complex considerations used in making ethical decisions about human health in the context of new medical knowledge and techniques.
Instructional Methods
1. A note-taking template for each lecture will be posted ahead of time on Blackboard. This template will include the goals for the lecture, the organization of the lecture and the diagrams used to illustrate concepts in class. Students are strongly encouraged to print this template ahead of the lecture to facilitate taking notes in class.
2. The lab handouts, videos from class and optional readings will also be published on Blackboard each week.
3. Labs are a critical part of this class and typically the most enjoyable part for students. They are designed to reinforce the concepts in the text through hands-on experience, provide practice in biological observations and conducting experiments and provide you with an opportunity to practice scientific writing.
4. Be prepared for a lecture and lab assignment in each class session.
5. Be prepared for a quick 5-point quiz at the start of each lesson. This will encourage your to keep up with your reading and to be on time for each lesson. This cannot be made up if you have an unexcused absence from class.

Opportunities for feedback and interaction
Every day, you are exposed to information in the media, from your healthcare provider and your friends about health and caring for our bodies. One goal of this class is to give you the biology background to allow you to think critically about health issues that affect you. As questions and comments arise, feel free to add them to the Blackboard Discussion Forum, “Thoughts on Human Biology”. Your thoughts can help to bring up issues of interest that can be explored in class- although you will find that there are rarely easy answers. As you add comments or questions be sure not to include details that are personally identifiable to you or others to avoid compromising another person’s privacy.

Class Policies
1. Please turn off your cell phone and close your laptop at the beginning of class. Practice focusing on class and the contributions of your classmates, rather than on the distractions of the day. Distracting other students by taking calls or messaging during lecture hurts everyone’s learning. Students also learn best when they write out the class notes by hand. Diagrams provided in the note-taking template should make taking notes faster and easier. Very successful students summarize the information in the lecture, but work with a note-taking partner and their text to fill in the blanks missed in class.
2. Food, drinks and smoking are not allowed in labs at UAF. Plan to eat before you come to class – it is hard to think when you are hungry. There will be a short break at 7:30 that will allow you to quickly eat a snack.
3. Pay special attention to the safety guidelines for each lab. They are there to protect you and will be strictly enforced.
4. Children are not allowed in the lab.
5. Excellent attendance is the best predictor of success. Some experiments will take several days to complete and your classmates will count on your participation. Do your best to be in class on time. Attendance will be taken for each lesson. If you must miss class for an illness or other emergency, please let me know before class. Work missed during an excused absence can be made up during the next office hour. Work missed during an unexcused absence cannot be made up. If you ever have questions about an assignment or policy, please talk to me about it right away.
Assessment

1. Grades will be based on the percentage of total points earned out of the total possible points based on the following scale:

   - **A+** 98 - 100%
   - **A** 91 - 97%
   - **A-** 90%
   - **B+** 88 - 89%
   - **B** 81 - 87%
   - **B-** 80%
   - **C+** 78 - 79%
   - **C** 71 - 77%
   - **C-** 70%
   - **D** 60 - 69%
   - **F** lower than 60%

Grades will be uploaded weekly on Blackboard. Be sure that you check your grade often.

Point Breakdown

- 120 points for daily 5-point quizzes
- 150 points for unit exams
  - This will include three, one-hour, 50-point exams. They will include multiple choice, short answer, and practical items covering lab and class materials. The first 50-point exam will be open note.
- 100 points for the final exam.
  - This will be two-hour multiple choice and short answer exam. Fifty points of the final exam will assess the last three weeks of class and 50 points will be a comprehensive assessment of the entire semester.
- Approximately 500 points for labs and assignment.
  - 300 points laboratory work
  - 120 points written assignments
  - 60 points computer simulations
- No extra credit will be offered.

2. Assignments from the previous lesson are due at the beginning of the next class period. Your score for late work will be decreased to 50% of the earned points. Makeup work or late work turned in after the day of the unit test will not receive credit. You will not receive credit for missed tests unless arrangements are made with the instructor ahead of time. Labs are very difficult or impossible to make up, so see the instructor well in advance of any absence you can predict.

3. Academic dishonesty will not be tolerated. No collaboration is permitted on exams or quizzes. The use of any reference materials (books, phones, other people, etc.) on exams is academic dishonesty. Although you will work with a partner or partners during lab, the report that you submit must be written independently, in your own words, without any traces of copying. Copying or paraphrasing another student's work as your own is a violation of the Student Code, as is copying or paraphrasing material published in print or on-line. Any instances of academic dishonesty will result in a grade of zero on the work, forwarding of the incident to the appropriate University personnel, and may also result in an F in the course.

Disabilities Services

UAF has a Disability Services office that operates in conjunction with the UAF Community and Technical College. Disability Services, located in room 208 of the Whitaker Building, provides academic accommodations to enrolled students who are identified as being eligible for these services.
If you believe you are eligible, please visit http://www.uaf.edu/disability on the web or contact CTC’s student Assistance and Advising Center (455-2800). You can also contact Disability Services on the Fairbanks Campus at (907) 474-5655 at uaf-disabilityservices@alaska.ed.

**Student Protections and Services Statement**
Every qualified student is welcome in my classroom. As needed, I am happy to work with you, disability services, veterans' services, rural student services, etc. to find reasonable accommodations. Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. As required, if I notice or am informed of certain types of misconduct, then I am required to report it to the appropriate authorities. For more information on your rights as a student and the resources available to you to resolve problems, please go the following site: www.uaf.edu/handbook/.
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<th>Dates</th>
<th>Lecture Topics</th>
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<th>Weekly Lab Topics</th>
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<td><strong>Week 1</strong></td>
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<tr>
<td>Jan 14 and Jan 16</td>
<td>The Art and Science of Human Biology</td>
<td>Chapter 1 pg. 1-20</td>
<td>• Microscope Techniques Lab</td>
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<td>Language and Chemistry of the Human Body</td>
<td>Chapter 2 pg. 21-46</td>
<td>• Osmosis Computer Lab</td>
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<td><strong>Week 2</strong></td>
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<td>Jan 21 MLK Day</td>
<td>Organization of the Body: Cells</td>
<td>Chapter 3 pg. 47-66, 70-76</td>
<td>• Cell Structure and Function.</td>
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<td>Jan 23</td>
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<td><strong>Week 3</strong></td>
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<td>Jan 28 and 30</td>
<td>Cells to Tissues</td>
<td>Chapter 4 pg. 77-80, 84-97</td>
<td>• Introduction to Tissue Types</td>
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<td>The Skeletal System</td>
<td>Chapter 5 pg. 99-118</td>
<td>• Skeleton Structure and Function Lab</td>
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<td><strong>Week 4</strong></td>
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<td>Feb 4 and 6</td>
<td>Monday: Muscular Systems</td>
<td>Chapter 6 pg. 119-138</td>
<td>• Muscle Function Lab</td>
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<td><strong>Wednesday: Test 1 1 hr. Chapters 1-6</strong></td>
<td>Chapter 8 pg. 159-186</td>
<td>• Blood Pressure and Homeostasis Activity</td>
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<td>Begin the Cardiovascular System</td>
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<td><strong>Week 5</strong></td>
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<td>Feb 11 and 13</td>
<td>Finish the Cardiovascular System: The Pump, the Plumbing and Respiration.</td>
<td>Chapter 10 pg. 230-232</td>
<td>• Pig Heart Dissection</td>
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<td>Blood Components and their Functions</td>
<td>Chapter 7 pg. 139-158</td>
<td>• Respiration Lab</td>
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<td><strong>Week 6</strong></td>
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<td>• Blood Borne Pathogens Training</td>
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<td>Feb 18 and 20</td>
<td>Pathogens and Diseases Immune System Responses</td>
<td>Chapter 9 pg. 187-199</td>
<td>• Personal Blood Lab</td>
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<td>Chapter 9 pg. 199-217</td>
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<td><strong>Week 7</strong></td>
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<td>Sensory Mechanisms</td>
<td>Chapter 12 pg. 274-297</td>
<td>• Reflex Lab</td>
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<td>• Sensory Perception Lab</td>
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<td><strong>Week 8</strong></td>
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<td>March 4 and 6</td>
<td>Monday: Test 2 Chapters 7-12</td>
<td>Chapter 14 pg. 322-350</td>
<td>• Energy in Foods</td>
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<td>Digestive System and Nutrition</td>
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<td>• Food Chemistry Lab</td>
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<td>• Rat Dissection</td>
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| Week 9 | March 18 and 20 | The Endocrine System | Chapter 13 pg. 298-321 | • Stress Response Lab  
• Metabolism Lab |
| Week 10 | March 25 and 27 | Finish Human Reproduction | Chapter 16 pg. 373-398 |
| Week 11 | April 1 and 3 | Cell Reproduction, Differentiation and Cancer | Chapter 21 pg. 479-502 | • Reproductive System Activity  
• Cultural Supports of Development Essay |
| Week 12 | April 8 and 10 | **Monday: Test 3**  
**Chapters 13,14, 16, 18, 21**  
Wednesday: The Central Dogma: DNA and Protein Synthesis | Review:  
Chapter 2 pg. 38-42  
Chapter 17 pg. 402-406 | • DNA Extraction  
• DNA Model  
• Introduction to Electrophoresis Lab |
| Week 13 | April 15 and 17 | Biotechnology  
Begin Genetics and Inheritance | Chapter 20 pg. 463-478  
Chapter 19 pg. 441-462 | • DNA Fingerprinting Lab  
• Genetic Problem Solving: Mendelian Genetics |
| Week 14 | April 22 and 24 | Finish Genetics and Inheritance  
Introduction to Bioethics: Ethical Principals | Chapter 19 pg. 441-462  
Ethics readings, case studies and activities will be distributed in class | • Genetic Problems Solving: Non-Mendelian Genetics  
• Designer Babies Reading |
| April 29 | Bioethics Continue: Genetic Testing: Issues of Autonomy  
Scarce Organs: Issues of Justice  
Gene Editing and Medical Research: The Scientific Method and Ethics | Ethics readings, case studies and activities will be distributed in class | • Max’s Case: Who needs to know.  
• Liver Transplants: A Problem of Scarcity.  
• Issues in Genetic Manipulation of Human Cells. |
| Wednesday May 1st | 100 point final exam  
50 points: DNA, Genetics, and Ethics  
50 points: Comprehensive |