Instructor: Dr. Steven Gorsich  
Office: Brooks Hall, 230a  
Phone: 774-1865  
Email: gorsi1sw@cmich.edu (the best way to reach me)  
Office Hours: Online and/or by appointment

Course Description  
Inheritance in humans, including genetic mechanisms, human populations, medical syndromes, eugenics, and genetic counseling. Does not count toward biology major.

Course Goals and Objectives  
The beginning of the 21st century is an exciting time in human history to be studying genetics. The advances in molecular biology and computer science have created a synergy that is allowing geneticists to investigate fascinating questions that we would not have thought possible just a few decades ago. The ability to sequence entire genomes and to handle this large amount of data rapidly has allowed the scientific community to discover the complete genomic sequences of organisms ranging from bacteria to humans. These discoveries are helping us determine the function of genes that direct how we as humans develop and function. Moreover, these studies are helping to identify genes that when mutated cause disease. We are also learning about how life has evolved, and the genetic differences that separate one species from another. These discoveries are having incredible social, medical, economical, and political impacts that we all will have to consider at some point. Thus- it is an exciting time to become a geneticist – even if only for one semester

The objective of this course is to explore the mechanisms of human heredity and how our understanding of them is revealed by scientific experimentation. The location, transmission, structure and function of genes encoding specific traits are discussed. The effect of mutations, genes implicated in human genetic disease, and population genetics are dealt with, as well as how issues such as recombinant DNA technology, gene therapy, genetically modified foods, AIDS and cancer impact our society. The course is designed to give students an appreciation of this fast moving field and an understanding of the potential impact genetics will have on our society.

Required texts and software  
E-books are available through the publisher.

Prerequisites  
There are no prerequisites. This course does NOT count towards any biology major at Central Michigan University.

Strongly Recommended Courses  
Introductory Biology course(s), such as Bio 101 or high school advanced biology. Introductory Chemistry course or high school chemistry. Mathematics: Familiarity with algebraic concepts and basic probability concepts.

Blackboard Site: https://blackboard.cmich.edu/webapps/login/  
You will need your global ID and password. This being an online course, blackboard will be used extensively. I will post lectures, voice over recordings, homework, exams, and discussion activities. In addition, you will want to check blackboard regularly for announcements and grades as well as to communicate with your classmates and myself.

Special Requirements of the Course
Students taking this online course must have a computer with email and Internet capabilities. Faculty and students will interact over the Internet using Blackboard and Wimba Live Classroom technologies. Tests and quizzes will be taken electronically using Blackboard test options that will have an enforced time limit and questions will be varied using a test-question bank. This course is designed for self-disciplined and self-motivated students. Students will be provided technical support from CMU Online staff.

**General Methodology Used in Conducting the Course**

The course will use Blackboard, which will be used as an interactive computer-mediated learning environment.

Students are required to be familiar with Blackboard and its many learning tools. The instructor will assist as needed. Learning tools that will be provided to the students include: PowerPoint presentations of lectures, narrated lectures (audio and visual), discussion on chapter topics as well as how genetics influences our society, study guides (that include key words and topics, and additional questions), quizzes, and homework, and other material from the textbook’s publisher. Blackboard’s on-line grade book will allow students to keep up with their grades and receive feedback.

Interactions between students and instructors will include the use of email, chat, discussion boards, and virtual office hours with the use of Wimba Live Classroom.

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<th>Tentative Point Description</th>
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<tbody>
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<td>Midterm Exam</td>
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<td>Portfolio Assignment</td>
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| **Total Points**            | **480**

**Grading**

- 94+ = A
- 90-93.9 = A-
- 88-89.9 = B+
- 83-87.9 = B
- 80-82.9 = B-
- 78-79.9 = C+
- <60 = E

**Exams**

There are two exams in this course: a Midterm and Final Exam. Each exam will have two independent sections. The first section will be a multiple choice/true false section of 40 questions (worth 80 points). The second exam section is a short answer section of approximately 8 questions (worth 64 points). These exams are 100% online. Each exam and its sections must be completed by the Wednesday after they are assigned (11:59 pm on Wednesday).

You have **50 minutes and ONE attempt** to complete each exam section (total of 100 minutes for each complete exam)! Do not open the exam unless you are ready to take it! Once an exam is opened, you must finish it within the given time. **You will lose one point for per minute passing the limited time. You must work on the test independently and individually!** NO makeup exam will be given unless it is pre-approved by the course instructor (with evidence & documents).

The midterm and Final Exams are closed book. You are not allowed to use your textbook, notes, the Internet, or any other external source. **You MUST use your own words in your answer. Do NOT copy something from any source, even if you cite it. This is plagiarism and will result in a zero.**
Review the "Exam Tips" sheet (http://www.cmich.edu/documents/blackboard/student/online_exam_tips.pdf) before taking exams!

**Quizzes**
There are 8 quizzes in this course (1 each week). These quizzes are 100% online and contain 20 multiple choice and true false questions. They will be posted on every Friday at 8am and will be due on Sunday at 11:59 pm.

Unlike Exams, you will have 5 attempts and your highest grade will be recorded. In addition, with quizzes only, you can use notes, textbooks, and work with classmates, but once you open the quiz on blackboard it must be completed.

**Discussion Board Postings**
One of the best ways to learn is by discussing ideas with peers. There will be weekly discussion board topics that you will be required to participate in. Up to 2.5 points can be earned for each substantive response to the main discussion topic (must post initial response by the end of Wednesday of each week) and up to 2.5 points will be earned for your response to someone else's post (this second post must occur between Thursday and Sunday of each week). The maximum you can receive for any discussion board topic is 5 points per week and 42 points for the semester (2 points are awarded for your introductory post). Note that no points will be earned for discussion responses posted after the week ends. I encourage you to respond as often as you like.

The purpose of the discussion forum is to generate conversations about relevant topics. Please respond to as many postings as you wish and keep the discussions going. This is an excellent way to learn from each other. However, it is important to remember that there are many people participating in these discussions so there will be many opinions shared that are not your own. Therefore, it is essential that everyone respects each others opinions. Points will be lost for disrespectful comments.

**Wimba Participation**
Students must actively participate in at least 3 of the first 7 weekly WIMBA sessions. Each week students can earn up to 5 points. To earn the full amount of points students must participate in the discussion. There is a maximum of 15 points possible for the semester. You will receive one bonus point (in the Wimba Category) for any Wimba sessions you attend beyond the your required 3.

Note: The 8th week we will have a WIMBA session, but this will be for student portfolio discussions and is part of your portfolio grade.

**Portfolio Assignment**
The portfolio assignment is designed to get you to think about a specific genetic disease or trait and the issues surrounding the disease. I encourage you to pick a topic that you have a personal interest in. Maybe there is a disease or trait that you always wanted to learn more about. This is your opportunity. This is not a traditional research paper. The portfolio assignment will contain an introduction section, two websites, 4 article summaries, and a conclusion. All topics need to be approved by me. The grade for this project is divided into 3 parts: 5 points for turning the topic in on time, 35 points for the portfolio itself, and 10 points for a brief presentation of the portfolio topic.

**Reading Assignments**
Reading assignments in the text are either listed on the tentative lecture schedule or will be announced. Readings and lectures will complement each other. This being an online course you will need to take a large responsibility of reading the material. We will not cover every detail in lecture and I will expect you to obtain certain information from reading the text rather than from lecture. Don't fall behind. Try to read the assignment before each class, but at the very latest read it on the same day as the class.

**Attendance**
Since this is not a face-to-face class there is no attendance points. However, when we meet online for discussion assignments and Wimba chats you will be expected to attend. These cannot be made up. In addition, all quizzes and exams have specific due dates that students must follow. Students with extended absences due to illness or other excused reason should contact me about making up required coursework. Make-up assignments/quizzes and exams will be given only under extreme personal circumstances (illness, death in the family), extramural athletic participation, required field trips in other courses, or employment obligations, and must be approved in advance (if possible). A note from the appropriate authority must be provided.

Late assignments
Late assignments (if accepted) will have 10% deducted from the grade per day late.

Expectations for Students
It takes great effort to be a successful online student. You have to be self-motivated and self-disciplined to keep yourself on schedule with reading, assignments, projects, etc. You do have to devote time from your busy family and work schedule to work on the course so you will not fall behind. To be successful an open communication channel between us is important. It is very important that we keep connected and interact with one another. If you have questions, please feel free to use email, discussion board, chat, or phone to contact me, or your classmates. Learning takes place in a community. Below are specific expectations I have for students.

1. Students are expected to check their e-mail and read the Announcements on Blackboard daily.
2. Students are expected to communicate with me when problems, difficulties, or confusion arise.
3. Students are expected to submit their assignments online through Blackboard by the due date.
4. Students are expected to participate in weekly discussions.
5. Students are expected to participate in at least two of the Wimba sessions.

Expectation for the Instructor
Just as we have my expectations for you, the following is what I will do (as a minimum) to ensure efficient online teaching and learning.

1. I will check my email daily.
2. I will respond to course related questions within 24 hours.
3. If I find those questions relevant and important to others, I will communicate them to the entire class via email or on the Announcement page.
4. I will post announcements or email reminders as needed.
5. I will give feedback on submitted assignments within a week.

Policy on Academic Integrity
In May 2001, the Central Michigan University Academic Senate approved the Policy on Academic Integrity, which applies to all university students. Copies are available on the CMU web site at http://academicsenate.cmich.edu/noncurric.htm, and in the Academic Senate Office in room 108 of Bovee University Center. All academic work is expected to be in compliance with this policy. See also Plagiarism: a brief overview at http://www.cst.cmich.edu/users/alm1ew/Plagiarism.html if you have questions. Any plagiarized work or other act of dishonesty will receive a Zero and the Office of Student Life will be notified. You are responsible for understanding what constitutes plagiarism.

Classroom Civility
Each CMU student is encouraged to help create an environment during class that promotes learning, dignity, and mutual respect for everyone. Students who speak at inappropriate times, sleep in class, display inattention, take frequent breaks, interrupt the class by coming to class late, engage in loud or distracting behaviors, use cell phone or pagers in class, use inappropriate language, are verbally abusive, display defiance or disrespect to others, or behave aggressively toward others could be asked to leave the class and subjected to disciplinary action under the Code of Student Rights, Responsibilities and Disciplinary Procedures.
**Requests for Accommodation:** CMU provides students with disabilities reasonable accommodation to participate in educational programs, activities or services. Students with disabilities requiring accommodation to participate in class activities or meet course requirements should first register with the office of Student Disability Services (250 Foust Hall, telephone #989-774-3018, TDD #2568), and then contact me as soon as possible.

**Course Outline/Schedule**

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<thead>
<tr>
<th>Week</th>
<th>Lecture Topic</th>
<th>Reading Assignments &amp; Due Dates</th>
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</table>
| Week 1 | Lecture: Cells and Cell Structure   
Lecture: Sex and Development     
Lecture: Assisted Reproductive Technology  
Discussion 1  
Wimba  
Portfolio Topic Due  
Quiz 1 (Biology Basics 1 and Chapters 1-2) | Biology Basics 1  
Chapter 1  
Chapter 2  
Wed and Sun of Wk 1  
To be determined  
Friday by 6:00 PM  
Sunday at 11:59pm |
| Week 2 | Lecture: Changes in Chromosome Number  
Lecture: How Genes are transmitted from Generation to Generation  
Discussion 2  
Wimba  
Quiz 2 (Chapters 3-4) | Chapter 3  
Chapter 4  
Wed and Sun of Wk 2  
To be determined  
Sunday at 11:59pm |
| Week 3 | Lecture: DNA and RNA  
Lecture: Gene Expression and Gene Regulation  
Lecture: Changes in DNA: Mutation and Epigenetics  
Discussion 3  
Wimba  
Quiz 3 (Biology Basics 2 and Chapters 5-6) | Biology Basics 2  
Chapter 5  
Chapter 6  
Wed and Sun of Wk 3  
To be determined  
Sunday at 11:59pm |
| Week 4 | Lecture: Biotechnology  
Lecture: Genetic Testing and Prenatal Diagnosis  
Discussion 4  
Wimba  
Quiz 4 (Chapters 7-8)  
Midterm Exam (Biology Basics 1-2 and Chapters 1-8) | Chapter 7  
Chapter 8  
Wed and Sun of Wk 4  
To be determined  
Sunday at 11:59pm  
Following Wed at 11:59pm |
| Week 5 | Lecture: DNA Forensics  
Lecture: Genomics  
Discussion 5  
Wimba  
Quiz 5 (Chapters 9-10) | Chapter 9  
Chapter 10  
Wed and Sun of Wk 5  
To be determined  
Sunday at 11:59pm |
| Week 6 | Lecture: Genes, Populations, and the Environment  
Lecture: Inheritance of Complex Traits  
Lecture: Cancer and Cell Cycle  
Discussion 6  
Wimba  
Quiz 6 (Biology Basics 3 and Chapters 11-13) | Biology Basics 3  
Chapter 11  
Chapter 12  
Wed and Sun of Wk 6  
To be determined  
Sunday at 11:59pm |
| Week 7 | Lecture: Behavior  
Lecture: Portfolio Due  
Discussion 7  
Wimba  
Quiz 7 (Chapters 13-14) | Chapter 13  
Chapter 14  
Friday  
Wed and Sun of Wk 7  
To be determined  
Sunday at 11:59pm |
| Week 8 | Lecture: Genetics and Populations  
Lecture: Human Evolution | Chapter 15  
Chapter 16 |
Portfolio Presentation  
Discussion 8  
Wimba  
Quiz 8 (Chapter 15-17)  
Final Exam (BioBasics III and Chapters 9-17) | Chapter 17  
To be determined  
Wed and Sun of Wk 8  
To be determined  
Sunday at 11:59pm  
Wednesday of next week at 11:59pm |