

Mississippi College
Syllabus: Medical Genetics/BIO 6541
Spring 2014

Course:	Medical Genetics	Instructor:	R.C. Sample
Section/CRN:	BIO 6541/Z/22750	Email:	sample@mc.edu
Class Time:	MWF/11:00am – 11:50am	Phone:	Office: 601-925-7741
Location:	MS 210	Office:	MS 217
Semester:	Spring 2014	Credit:	3 lecture hours
Office Hours:	As Posted		

Prerequisites: Graduate standing with the appropriate biology course background.

Catalog Course Description: "A study of the basic principles of human heredity including the genetic material of humans, the behavior of genes in individuals, in kindreds and in populations."

Rationale: Medical Genetics, and its basis, is the study of inheritance, which is the key to the perpetuation of all life. An understanding of genetics is therefore essential to any biology or medical students' education. This class focuses on the genetics of humans, and will provide a foundation in Mendelian and non-Mendelian inheritance. It will also focus on the molecular mechanisms that regulate gene expression. Further, this course will touch on genetic diseases and their treatment along with genetic based medicines that can be used to treat these conditions and others. The study of Medical Genetics fulfills the mission of the college through the concentrated study in specialized fields, in this case Medical Genetics.

I. Course Format: This course will be taught in the following lecture format, but the instructor reserves the right to change the format at any time to allow for the enhancement of the learning environment. This course will be presented in a lecture format supplemented with PowerPoint presentations, lecture notes, primary source articles, and internet information.

Section I: An Introduction to Genetics and Cell Biology

1. Medical Genetics in Perspective.
2. The Human Genome.
3. Nucleic Acid Structure and Function.
4. DNA Analysis.
5. Chromosomes.

Lecture Exam I: **5 Feb 2014**

6. Gametogenesis.
7. Chromosome Aberrations.
8. Typical Mendelian Inheritance.
9. Atypical Mendelian Inheritance.
10. Non-Mendelian Inheritance.
11. Medical Genetics in Populations.

Lecture Exam II: **5 Mar 2014**

Section II: Genetic Traits

12. Genetic Assessment, Genetic Counseling and Reproductive Options.
13. Family History of Cancer.
14. Family History of Common Adult-Onset Disorder
15. Strong Family History – Typical Mendelian Disease
16. Strong Family History – Other Inheritance Mechanisms

Lecture Exam III: **9 Apr 2014**

17. Screening for Disease and for Carriers
18. Family History of one or more Congenital Malformations

Section III: Genetic Development, Conditions and Diseases

19. Electronic Databases – A User's Guide.

Additional Topics and Primary Sourced Papers

Lecture Exam IV: **7 May 2014**

Objectives:

To provide the student with knowledge of:

1. the background and history of the field of genetics and its role in human heredity.
2. a review of the components and biochemical pathways of the cell.
3. a review of genes and their function in the processes of inheritance.
4. the process of the transfer of genetic information by both autosomal and sex-linked traits.
5. the field of cytogenetics.
6. the field of biochemical genetics.
7. gene mapping and gene identification.
8. the field of immunogenetics.
9. the field of developmental genetics.
10. the field of cancer genetics.
11. how genetics plays a role in disease.
12. the uses and importance of genetic testing.
13. the applications of gene therapy.
14. how medicine can be tailored to a specific individual.
15. genetic counseling and the importance of clinical genetics.

II. MATERIALS REQUIRED: The following list of materials will be needed for the completion of this course.

Essential Medical Genetics, 6th Ed., Edward S. Tobias, Michael Connor, Malcolm Ferguson-Smith, Wiley and Sons Publishers, 2011 (978-1-4051-6974-5).

III. GRADING: Grading will be based on a point acquisition system. A student's grade will be based on the total number of points attained during the progress of the course and not the percentage score that they obtained on the materials attempted. The point breakdown is as follows for the materials that will be assigned in the course.

400 points Lecture Exams (1000 points each, 4 total)

400 points Total points for the Course

Scores:

360 – 400 points	90% - 100%	A
320 – 359 points	80% - 89.99%	B (B+ for 86.67% - 89.99%)
280 – 319 points	70% - 79.99%	C (C+ for 76.67% - 79.99%)
240 – 279 points	60% - 69.99%	D
0 – 239 points	0% - 59.99%	Failure of the Course

It is the belief of the instructor that attendance in class can be correlated to performance. If a student chooses not to attend lecture then their final grade could be impacted. Mississippi College requires students to attend 75% of all class meetings for courses they are enrolled in. If a student misses more than 25% the class meetings for a course they are to receive a failing grade based on attendance. Strict adherence to Mississippi College's class attendance policy is as follows: "Any student whose absences, whether excused or unexcused, exceed 25% of the class meetings will receive a grade of "F" in the course." Attendance in class is expected. The student (not the instructor) is responsible for any instructions, assignments, or work missed during an absence. Tests missed during an excused absence must be made up within one week. Tests missed during an unexcused absence will not be made up. **Refer to the Mississippi College Undergraduate Catalog for clarification of any point in relation to attendance.**

There will be no official final exam in that the forth exam will serve in place of the final exam.

Any missed assignments will be made up at a designated time and place as determined by the instructor. Make-up tests are more difficult since they must be formatted differently and include essay questions based on the instructor's discretion.

All materials will be handed in when the instructor specifies. If they are not handed in at the time designated, a 10% penalty will be assessed and an additional 5% per day penalty will be assessed until the assignment is presented to the instructor.

Students will also be required to check MC Moodle (<http://moodle.mc.edu/>) for syllabus information, course documents, assignments and other materials as directed by the instructor. Students will be required to check their MC email and MC Moodle at a minimum of 2 times per day, i.e., morning and evening. Students will be responsible for any and all information that has been disseminated via either of these methods.

IV. ACADEMIC INTEGRITY: All students are expected to complete their assignments based on their own skills and knowledge, unless otherwise directed by the instructor. Studying as groups is highly recommended and suggested. However, quizzes and exams are not group projects; therefore, any academic dishonesty

will be dealt with immediately and at the discretion of the instructor. All instances of academic dishonesty will also be reported to the department chair, the division and as appropriately to the college administration (to include the Dean of Academic/Student Affairs or other administrative officials) as necessary. The instructor also reserves the right to remove a student or students from the class as deemed necessary due to acts of academic indiscretion. Mississippi College students should display academic integrity in all situations. Honesty is expected from all students at all times. Dishonesty, such as cheating, plagiarism, and falsifying information, is a serious offense and is subject to severe penalty. Adherence to the Mississippi College "Honesty Policy" (Mississippi College Undergraduate Bulletin) will be followed. **Refer to the Mississippi College Undergraduate Catalog for clarification of any point in relation to Academic Integrity.**

V. BEHAVIOR: Any student can be removed from the class at the instructor's discretion based upon behavior. If the instructor determines that a student's conduct is distracting or detrimental to the overall learning environment of the classroom, the student or students will first be informed of their unacceptable behavior and on a second occurrence will be removed from the class and only allowed to return after meeting with the department chair, the division and as appropriately with the college administration (to include the Vice President of Academic/Student Affairs or other administrative officials) as necessary. The instructor retains the sole right of refusal to allow a student back into the classroom after the student has been removed and dropped from the academic roster due to behavior problems.

Students are also advised that they are to come to the instructor first if there is a perceived problem. If the problem cannot be rectified at this level, a student is free to pursue rectifying the issue by meeting with the department chair, the division and as appropriately with the college administration (to include the Vice President of Academic/Student Affairs or other administrative officials) as necessary to try and reach an amicable solution. **Refer to the Mississippi College Undergraduate Catalog for clarification of any point in relation to Behavior.**

Cell phones will have all functions set on silent/vibrate during class. Students will not send text messages or answer calls during class. If it is an emergency you are instructed to leave the classroom in a manner as to not disturb instruction. Other electronic devices will remain in backpacks, purses, etc. and not be placed on the desk or used during class unless specified by the instructor. If a student is found to be using any kind of electronic device during an exam, unless otherwise directed, will receive a score of zero (0) for the exam and could be referred to the Academic Counsel for further punitive measures.

Computers may be used during class, but if this privilege is abused by students not using their computers in relation to academic work, i.e., watching YouTube®, checking sports scores, instant messaging, surfing Facebook®, or any other related activity, the use of computers may be suspended during the remainder of the course.

Recording of the class is allowed for audio purposes. No video recording of any lecture will be permitted without the prior permission of the instructor. Violation of these policies will result in stern punitive action by the instructor to include, but are not limited to, removal of the student from the course, receiving a score of (0) on the subsequent exam, and/or referral to the department chair/dean for disciplinary action.

Early Alert System:

Mississippi College has adopted the practice of finding students early in the semester who may be exhibiting behaviors that could ultimately have a negative impact on their academic progress. These behaviors are often called "red flag" behaviors and include, but are not limited to, excessive absences, poor test grades, and lack of class participation or evidence of non-engagement. Identifying these behaviors early gives the instructor the opportunity to raise the "red flag" on behalf of a particular student so that the student can take the appropriate action to redirect his/her progress. The system alerts the student, the student's advisor, and the Office of Student Success.

These messages are intended to help a student recognize an area of concern and to encourage him/her to make some choices to improve the situation. When a student receives an Early Alert message, the student should quickly make an appointment to talk with his/her professor about the situation. Also, students can make full use of the Office of Student Success to set academic goals and connect to campus resources.

Special accommodations at Student Counseling Services:

In order for a student to receive disability accommodations under Section 504 of the Americans with Disabilities Act, he or she must schedule an individual meeting with the Director of Student Counseling Services **immediately upon recognition of their disability** (if their disability is known they must come in before the semester begins or make an appointment **immediately** upon receipt of their syllabi for the new semester). The student must bring with them written documentation from a medical physician and/or licensed clinician that verifies their disability. If the student has received prior accommodations, they must bring written documentation of those accommodations (example Individualized Education Plan from the school system). Documentation must be current (**within 3 years**). The student must meet with SCS **face-to face** and also attend two (2) additional follow up meetings (one mid semester before or after midterm examinations and the last one at the end of the semester). Please note that the student may also schedule additional meetings as needed for support through SCS as they work with their professor throughout the semester. Note: Students must come in **each semester** to complete their Individualized Accommodation Plan (example: MC student completes fall semester IAP plan and even if student is a continuing student for the spring semester they must come in again to complete their spring semester IAP plan). Student Counseling Services is located in Alumni Hall Room #4 or they may be contacted via email at ward@mc.edu. You may also reach them by phone at **601-925-7790**.

ALSO, 100% TUITION REFUND CANNOT BE MADE ON DROPPED CLASSES AFTER 21 JAN 2014.

A copy of this statement is attached on the following page and will be turned into the instructor:

I _____ have read and had explained all of the information and policies outlined in this syllabus. I understand that as a student, that by signing this acknowledgement, I am required to adhere to the policies outlined in this syllabus during the period of my enrollment in this course. If at anytime I feel that I have not been treated in accordance with these policies, I have the right as a student to meet with the instructor, the department chair, the division and as appropriately with the college administration (to include the Vice President of Academic/Student Affairs or other administrative officials) as necessary to rectify this problem.

Course Name: _____

Course Number: _____

Date: _____

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Course Name: _____

Course Number: _____

Date: _____

Signature: