Mitochondrial Genomics Syllabus
Summer 2014

Course Name(s)/Number (s):
Mitochondrial Genomics: BIO426-A; BIO5426-Z

Course Location & Times:
Medical Sciences Building 210; The course will meet each day every week during the first summer term from 9:50-11:30 AM.

Instructor:
Angela A. Reiken, Ph.D., Assistant Professor, Department of Biological Sciences
Medical Sciences Building 216, (601) 925-7783, reiken@mc.edu

Course Description and Prerequisite(s) from the University Catalog:
BIO 426 - Mitochondrial Genomics
Credits, 3 sem. hrs
Prerequisite(s): BIO 111, BIO 112, BIO 305, and sophomore standing or higher.
This course centers on mitochondrial biology, including general structure and function, energy production and oxidative phosphorylation, and protein import. There is special focus on mitochondrial genome structure including genetic abnormalities, corresponding mitochondrial disorders, and use of the genome in mitochondrial haplotyping to determine maternal inheritance.

BIO 5426 - Mitochondrial Genomics
Credits, 3 sem. hrs.
Prerequisite(s): Graduate standing. This course centers on mitochondrial biology, including general structure and function, energy production and oxidative phosphorylation, and protein import. There is special focus on mitochondrial genome structure including genetic abnormalities, corresponding mitochondrial disorders, and use of the genome in mitochondrial haplotyping to determine maternal inheritance.

Rationale:
The purpose of Mitochondrial Genomics is designed to provide students with detailed instruction in the structure and physiology of mitochondria. This course is intended for students who plan to enter health professional schools and graduate programs in the biological or biomedical sciences. Most of the discussion in this course will focus on the mitochondrial genome and it products, with particular emphasis on origins, metabolism, and related disorders. An important part of this course involves the application of new concepts to the discussion of biological problems related to mitochondria in accordance with the university's commitment to academic excellence.

Methods of Instruction, Required Practices, and Instructional Materials:
- Methods of instruction include lecture, visual presentation, diagrams, reading of scientific papers, case studies, and oral presentation.
- Required practices include students applying concepts to answer clinical questions, participation in class activities, taking notes, reading, writing, researching information, and preparing and presenting a written paper or oral presentation.

- Instructional materials include instructional videos, scientific papers, lecture slides, computer, marker board, and handouts.

Student Objectives and Outcomes:

Upon the completion of this course you will be able to:

- Understand the structure, function, and variations of the mitochondrial genome in the context of humans and other organisms.
- Apply knowledge to clinical disorders related to mitochondrial dysfunction.
- Explain the roles of mitochondria in normal biological function.
- Gain an appreciation for mitochondria as a necessity for existence of higher life forms.

Methods of Evaluation:

- Students will present an oral presentation– Students must make a topic choice by the end of the first week of class. Students who do not choose by this time will be assigned a topic. The Presentations will be due according to a posted schedule that will be provided by the instructor.
- There are 2 comprehensive exams for this course (1 midterm and 1 final).
- There will be 2 comprehensive quizzes.
- Case studies will be covered during this course. Students will complete assignments based on case studies. Assignments may vary according to the nature of each study.
- Rubrics for grading of presentations and other assignments will be provided for students.
- If you miss completing an assignment on time, you must notify the instructor immediately and provide a medical, family emergency, school/job interview, or other valid excuse and immediately schedule a time to make up the work before the end of the course. Failure to do so will negatively affect your grade.

Attendance:

Your attendance in lectures is welcomed and expected. I will follow the University attendance policy as described in the MC Undergraduate and Graduate Catalogs. Please note that your grade can be reduced as a result of excessive absences. If you miss >25% of the classes, you will be given an F automatically. Your grade may be lowered if you have excessive absences. It is your responsibility to obtain missed notes/assignments from another student if you miss a lecture or activity. Excessive absences from class can result in the lowering of a student's grade. A class roll to track student attendance will be provided by the instructor each class meeting. Students are responsible for signing the roll each day before leaving class.

Writing Center:

The Mississippi College Writing Center, supervised by Dr. Steve Price, offers writing consultations free-of-charge to MC students. The Center is staffed by highly-qualified undergraduate tutors who conduct interactive, one-on-one sessions with students of all disciplines. The goal is to help writers at any stage of their writing process, from choosing topics to organizing their thoughts, from deep revision to grammar. To schedule an appointment, drop by the LRC area on the first floor of the Leland Speed Library, call 601-925-7289, or email WritingCenter@mc.edu. Walk in visits are also available.

Grading:

Assignment/Activity	% of Final Grade
Midterm Exam 1	30%
Final Exam 2	30%
Quiz 1	10%
Quiz 2	10%
Case Studies	10%
Presentation	10%

Graduate students: As a supplement to the requirements above, graduate students will have additional questions on the final exam based on the case study assignments.

Undergraduate Grading Scale: 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, and <60% = F.

Graduate Grading Scale: 90-100% = A, 85-89% = B+, 80-84% = B, 75-79% = C+, 70-74% = C, 60-69% = D, and <60% = F.

Academic honesty:

You are members of an institution that is dedicated to scholarship and spiritual growth. This institution is part of the larger academic community, the foundation of which is based on personal honesty. The success of this community depends on the commitment of both students and faculty to this principle and therefore cheating and plagiarism cannot and will not be tolerated. More importantly, Mississippi College is dedicated to empowering its students to develop the skills necessary for "making responsible, moral choices," and therefore, the University will accept nothing less than scrupulous honesty from its students. We will follow the University policy on Academic Honesty (Policy 2.19), which can be found in the student handbook, The Tomahawk, pp. 35-36. http://www.mc.edu/publications/handbook/academic.pdf

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: mbryant@mc.edu or rward@mc.edu or by phone at 601-925-7791.

Important College Dates for 1st 5-Week Summer Session

May 26, Monday – Memorial Day Holiday: Offices Closed, No Day or Night Classes
May 26, Monday, 2:00 p.m.: Residence Halls Open
May 27, Tuesday: Day and Night Classes Begin
May 28, Wednesday: LAST DAY TO DROP 1ST 5 WEEK SUMMER CLASS, 100% Tuition Only REFUND
May 28, Wednesday: LAST DAY TO REGISTER OR ADD 1ST 5 WEEK COURSE
June 4, Wednesday - 6:00 p.m.: Writing Proficiency Exam
June 4, Wednesday: Transfer Orientation
June 5,6 Thursday-Friday: Freshmen Orientation
June 6, Friday: Priority Deadline for ALL Degree Applications for August 2014 Graduation
June 11, Wednesday: LAST DAY TO DROP 1ST 5 WEEK COURSE
June 19,20 Thursday-Friday: Freshmen Orientation
June 20, Friday: Participation Deadline for ALL Degree Applications for August 2014 Graduation Registration begins for Spring 2013 Semester-Currently enrolled students
(In order to participate in the August 2014 Commencement, candidates MUST apply by this deadline)
June 26, Thursday: Last Day of 1st 5 Week Classes
June 26, Thursday: Final Exams for 1st 5 Week Course

The instructor reserves the right to make any necessary changes to the syllabus and schedule.

Course Topics and Schedule:

Dates	Week	Events and Assignments
May 26-May 30	1	Monday, May 26: Memorial Day Holiday, NO CLASS Read, sign, and return syllabus. Papers 1, 2, and 3
June 2-June 6	2	Monday, June 2: Quiz 1 Papers 3, 4, and 5 Friday, June 6: Presentations
June 9-June 13	3	Monday, June 9: Midterm Exam Papers 6, 7, and 8 Friday, June 13: Presentations
June 16-June 20	4	Monday, June 16: Quiz 2 Papers 9, 10, and 11 Friday, June 20: Presentations
June 23-June 26	5	Paper 12 and Case Studies Tuesday, June 24: Presentations Wednesday, June 25: Presentations Thursday, June 26: Final Exam

I have read and understand all expectations outlined in the summer Mitochondrial Genomics syllabus.

Name (print):_____Name (signature):_____Date:_____