

**SAM HOUSTON STATE UNIVERSITY
Department of Biological Sciences
Spring 2018 Semester**

COURSE SYLLABUS

BIOL 4096.02: Molecular Evolution, CRN 23775

Instructor: Madhusudan Choudhary

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Office Hours: TUES, WED, and THUR (12:00-2:00 PM)

Location: LDB 220

Time: Wednesday, 5.00-7.50 PM

Credit Hours: 3

Blackboard and Email: I will communicate with the class using email via Blackboard. I want you to check your email regularly. Also, Syllabus, lecture power points, reading assignments, and other information including announcements will be posted on the Blackboard.

Course Objectives:

The primary objectives of this course are to read and present scientific papers, critically evaluate and analyze ideas, methods, arguments, and point of views.

- **Learning to analyze and critically evaluate ideas, arguments, and points of view**
- **Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course**

Course Description: This course is designed for graduate students. However, undergraduates with interest in molecular evolution can credit this course through BIOL 4096. Selected scientific articles will be posted on blackboard. All students are required to read and be able to present and discuss the articles. A term paper is required for everyone, and you can discuss the topic with me.

The course will cover the following topics:

- Origin and Evolution of the universe-Stephen Hawking
- Prebiotic synthesis on primitive earth, organic synthesis and non-genetic amplification
- Introduction to Darwinian Evolution and Population Genetics
- Evolution of genetic material-RNA vs. Protein world hypothesis
- The RNA world: the three Domains of life forms
- Origin and evolution of the Genetic Code
- Evolution of genome architecture and complexity
- Evolution of exon-intron structure, evolution of protein domains
- Evolution of selfish DNA: repetitive DNA and transposable elements
- Evolution of gene regulation mechanisms
- Evolution of Symmetry and Development-Homeotic genes
- Neutral and adaptive theory of molecular evolution, molecular clock, and molecular phylogeny
- Speciation and evolution of Human
- Extinction of species, Endangered species, Synthetic genomes and directed evolution

Holidays/Important Dates:

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January 17	Class begins
February 16	Last day to drop without a "Q" and receive 100% refund.
March 12-16	Spring Break
March 30	Good Friday
April 6	Last Day to drop with a "Q" Grade
May 4	Last day of Instruction
May 9: (07:30PM-09:30 PM): Final Examination: LDB 220	

Grading for the activities:

Paper Presentation, Class Participation, and Homework	100 pts
Term Paper (Due on May 4)	100 pts
Final Exam (May 4, 7:30-9:30 PM)	100 pts
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Total	300 Points

Grading: 90-100 =A, 80-89 = B, 70-79 = C, and 60-69 = D

Academic Honesty:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The university and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, **plagiarism**, collusion and the abuse of resource materials.

Visitors in the classroom:

Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.

Students with Disabilities:

It is the policy of the university that no otherwise qualified disabled student shall, solely by reason of his/her handicap, be excluded from participation in, or denied benefits of, or is subject to discrimination under any academic or Student Life program or activity. Disabled students may request help with academically related problems stemming from individual disabilities by contacting their instructor, school/department chair, or by contacting the university Chair of the Committee for Continuing Assistance for Disabled Students/ Director of Counseling Center (located in Lee Drain Annex, phone 936-294-1720).

A student with a disability is encouraged to register with the university Counseling Center, as well as contacting their instructor about assistance needs. Accommodation cannot be made until the student has initiated the request with the Counseling Center. Every semester that the student desires accommodations, it is the student's responsibility to complete a Classroom Accommodation Request Form at the Counseling Center and follow the stated procedure in notifying faculty. Accommodations for disabled students are decided upon documentation and need on a case-by-case basis by the Counseling Center. All requests are handled with confidentiality according to university procedures.

Religious Holy Days Policy:

Section 51.911(b) of the Texas Education Code requires that the university excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University Policy 861001 provides procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). This request must be made in the first 15 days of the semester or the first 7 days of a summer session in which the absence(s) will occur. The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.