

**Topics in the Study of Life I (BIOL 1107; CRN 28513)**  
**Special PERSIST/FYRIS Section: Biological Forensics I**

**Spring 2016**

**INSTRUCTOR:** Dr. Kyle L. Johnson, Department of Biological Sciences  
**OFFICE:** Bioscience Research Building, Room 3.148  
**PHONE:** Office: 747-6889  
**EMAIL:** [kljohnson@utep.edu](mailto:kljohnson@utep.edu)  
**OFFICE HOURS:** By appointment  
**LAB:** Mon & Wed, 2:00 – 4:50 p.m., Biology Building, room B108  
**TA:** Miguel Beltran, B.S.  
**Textbook:** There is no textbook. Readings will be provided in PDF format.

**Prerequisites:** Students must be freshmen enrolled in the UTEP PERSIST or BUILD programs (collectively called FYRIS). Completion of *UNIV 1301: Research Foundations* is required. Students must secure instructor approval before enrolling.

**Course Objectives**

In *Biological Forensics I & II*, a laboratory research class, students in the PERSIST and BUILD programs will learn the basis of virus-host interactions while they solve the mystery of how an animal virus affects the structure and function of the mitochondria, the “powerhouse” of the cell. Our objectives are:

1. To understand the molecular mechanisms of virus-host interactions and key cellular pathways, including the structure and function of the mitochondria, mitochondria dynamics, RNA virus genome replication, and gene and protein expression patterns.
2. To gain practical experience of these basic laboratory skills: pipetting, dilutions, sterile technique, microscopy, and use of basic statistics for data analysis.
3. To build a foundation of basic scientific and research principles in Critical reading, identifying strengths and weaknesses in assays, designing experiments and inclusion of appropriate controls, keeping records, interpreting data and presenting results in a lab report format.
4. To develop familiarity with and understanding of standard methods and procedures used in virology research, including mammalian cell culture, transfection, localization of proteins by immunofluorescence confocal microscopy, isolation of nucleic acids and proteins, analysis of proteins by SDS-PAGE and Western blot and nucleic acids by PCR and RT-PCR, and techniques in bioinformatics analysis.

**Course Goals**

1. Learn the fundamental concepts of molecular virology
2. Learn to critically evaluate papers from the current virology literature
3. Apply the concepts you've learned
4. Extrapolate information and facts from what you already know
5. Communicate your understanding of virology both orally and in writing

## **CLASS POLICIES**

**Makeup Policy.** Attendance and participation form an essential part of your grade. Missed quizzes may be made up for reasonable absences including illness, death in the family, or University-sponsored activities such as athletic competitions, attendance of scientific conferences, and military service commitments. However, a signed note from a medical professional or other official must be provided within TWO weeks of the missed assignment to receive credit. Students who cannot provide written documentation will receive a score of 0 for the missed activity.

**Courtesy.** As a courtesy to your classmates, please give your full attention to all speakers and limit your in-class discussions to topics related to virology. Cell-phones and pagers must be turned off or set to silent mode for the duration of the class sessions. Tablet, laptop, and notebook computers are permitted ONLY if used for class-related activities. Please be on time for class – it disturbs the class when you arrive late.

**Academic Dishonesty.** It is the official policy of the University of Texas at El Paso that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Please see the Office of Student Conduct and Conflict Resolution (OSCCR) website at <http://sa.utep.edu/osccr/> for details.

**Disabilities.** If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, by email to [cass@utep.edu](mailto:cass@utep.edu), or go to Union Building East, Room 106. For additional information, please visit the CASS website at <http://www.utep.edu/CASS>. *CASS' Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.*

**Military Statement.** If you are a military student with the potential of being called to military service and/or training during the course of the semester, please contact me within the first two weeks of class to arrange in advance for makeup quizzes, etc.

### **Grading**

Grading is NOT based on a curve. Instead, we will use a straight % scale: A (90-100), B (80-89), C (70-79), D (60- 69), F (below 60). You will each EARN a grade that reflects the effort you put into the course and the knowledge you have gained. The final grade will be distributed as follows

1. **Quizzes.** The instructors will assign specific readings from the literature that must be read before class. In-class quizzes will test comprehension of the material. 15 quizzes will be given during the course of the semester and the three lowest quiz scores will be dropped.

2. **Experimental Design.** Before starting an experiment, investigators will outline the objective, the method rationale, and an experimental design plan for approval and review.
3. **Laboratory Notebooks.** Spot checks on laboratory notebooks will be conducted to ensure that experimental plans are present, thorough documentation of the experiments are maintained, and records are legible.
4. **Experimental Summaries (Lab reports).** At the end of each major experiment, students will prepare a brief summary report including the study objective, the experimental design, and appropriately analyzed data with an interpretation of the results.
5. **Data Presentation.** Lab groups will be assigned sections of the experimental process to present to the class.
6. **Final Report.** One major report will compile the results of the studies and tells a complete story from beginning to end of the goal/hypothesis, methods used, results obtained, and big-picture interpretation will be turned in by individual students.

**In summary,**

Quizzes	300 points (12 quizzes/25 pts each)	= 30% of total grade
Experimental design	100 points	= 10%
Lab notebook	100 points	= 10%
Experimental summaries	150 points	= 15%
Data presentation	100 points	= 10%
Final Paper	150 points	= 15%
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Total	1000 points	100%