Principles of Modern Biology I Syllabus

Biology 196

COURSE INFORMATION

Instructor Contact Information:

1. Please follow instructor directions for course communications.
2. Laboratory concerns should be directed to your laboratory TA or lab coordinator.
3. For questions related to lecture material or exams, please first attend Supplemental Instruction classes, and/or utilized the tutors available through the Biology Learning Center or Academic Success Center. If these resources are not sufficient, please see the Instructor during office hours.
4. Contact biology.help@unlv.edu for all questions / concerns regarding registration for biology courses.
5. Appointments outside of office hours may be arranged if **academic conflicts** are present during the regularly scheduled times; a printout of the student's MyUNLV class schedule is required to demonstrate such scheduling conflicts.

Course Description/Purpose:
BIOL 196 is primarily intended for biological-sciences majors. The course covers basic principles in the following areas: biochemistry, cell structure and function, cell metabolism, and genetics. The major emphasis is placed on eukaryotic cells, although prokaryotic cell biology is sometimes introduced as a way of emphasizing major concepts. A laboratory section reinforces these themes with "hands-on" activities and individual/group learning exercises. This is a 4-credit course; attendance is required for two lectures and one laboratory session per week. Unexcused *absence from 3 or more laboratory sessions automatically results in a failing grade for the entire course*. BIOL 196 satisfies the General Education Core requirement for a laboratory science course, but non-majors are strongly encouraged to take BIOL 100 or BIOL 189 to fulfill this requirement.

BIOL 196 is an intensive course; students must acquire a firm conceptual understanding of many fundamental biological principles. This course must provide the necessary foundation for the majority of the upper division courses for biology majors and be on par with similar introductory courses at other major universities. Students should complete the relevant text readings prior to attending class. A full-time course-load is equivalent to a full-time job that requires 40 or more hours per week. This class represents about 1/3 of a full course load. In addition to time spent in lecture and lab, students should set aside about 12-15 hours per week to read the text, meet with study groups, transcribe class notes, and proactively STUDY.

Course Learning Objectives:
Upon successful completion of this course, students should:

- Explain the process of scientific inquiry and apply this knowledge when conducting experiments in the laboratory.
- Discuss chemical interactions that are meaningful in biological systems, including atomic structure, bond formation, polarity, pH, and molecular interactions.
- Explain the basic organization of a cell, including the structures and functions of organelles and the cell membrane.
- Explain how cells accomplish tasks necessary for life, including how they utilize genetic information, acquire nutrients, extract and transform energy, synthesize biological molecules, remove wastes, regulate the internal environment, communicate, and reproduce.
- Discuss the structure and function of enzymes as well as provide examples of mechanisms of enzyme regulation.
- Explain how mitosis and meiosis fit into the lifecycle of a cell, and explain how these two processes differ.
- Apply their knowledge of chromosomes, genes, and alleles to solve Mendelian genetics problems.
- Integrate their knowledge of DNA, RNA, and protein structure with the molecular processes of DNA replication, DNA repair, transcription, translation, mutation, and regulation of gene expression.

Assessment of Course Learning Objectives:
Assessment of these learning objectives will be based on in-class i-clicker™ questions, assignments, formal lecture exams, a comprehensive final exam, and laboratory assignments and quizzes.

Required Materials:

1. Access to a networked computer for accessing WebCampus is required. Computer access is available in the library.
2. If obtaining course materials results in financial hardship, please contact Dr. Tseng immediately.
3. Lecture text: Principles of Life, 1st OR 2nd edition; Hills *et al*.; Freeman and Company Publishers.
   When purchased at the UNLV Bookstore, this book contains online access to the companion website: Launchpad.
   This textbook will serve as the text for both Biol 196 and Biol 197 courses.
   2 copies of the textbook are available at Lied Library as part of course reserves.
4. Lab manual: Biology 196: Principles of Modern Biology I Laboratory Manual (2015) bluedoor, LLC.
   ISBN-13: 978-1-59984-964-5
5. iClicker™ remote for classroom participation: available at UNLV bookstore. iClicker App/Reef Polling may also be *used at student's own discretion* as the software is not currently supported by UNLV IT.

Reading Assignments:

Each lecture topic is covered in depth by specific sections of the assigned textbook. These sections are indicated on the lecture schedule.

Class Materials and WebCampus:

This course utilizes UNLV's WebCampus system. Login instructions are available at http://webcampus.nevada.edu. Students who have problems using WebCampus need to call the Student Computing Support Center (702-895-0761) to immediately report problems. WebCampus will be used in this course to list the syllabus, lecture schedule, assignment schedule, announcements, lecture materials, chapter reviews, and exam seating assignments. It will also be used to administer assignments, report grades, and for email correspondence between students and the instructor. WebCampus provides a confidential means of communicating with your instructor and for viewing grades.

Please note that communication must occur through UNLV systems in order for the instructor to respond.

COURSE POLICIES

Classroom Conduct:

Lectures will begin promptly at scheduled time and will conclude after 1 hour and 15 minutes. The University requires that all students' behavior in class do not interfere with the right of other students to learn or of instructors to teach. Behaviors such as talking, reading newspapers or magazines during lecture, late and/or disruptive arrival, early and/or disruptive departure, having a cell phone ring, viewing materials on electronic devices that are not directly related to the course, or any other actions that compromise the classroom learning environment are extremely rude. The instructor maintains a zero-tolerance policy on these activities and will single out the student(s) if they occur. First-time offenders may be embarrassed, but serial offenders face stiffer consequences, which may include administrative removal from the course. Students should be aware that they are not anonymous in this class and that inappropriate behavior will not be tolerated.

Recording Lectures and Lecture Materials:

The content of lecture is the intellectual property of the instructor and UNLV. Students must receive permission from the instructor to take audio recordings of lecture for their PERSONAL study use. *The instructor DOES NOT authorize the distribution of these recordings or any course materials in any format; they may not be shared with others or distributed via the Internet or any other medium.*

PHOTOGRAPHY and VIDEO RECORDINGS OF LECTURE ARE NEVER ALLOWED. If unauthorized course content is distributed in any form, all privileges of lecture recording and availability of lecture slides will be terminated for the entire class.

Exams:

Attendance is mandatory at all exams, and all exams contribute to the course grade. These exams will be based primarily upon the lecture material presented in class. The instructor may excuse absence from an exam if the absence was due to observance of a religious holiday, due to an official UNLV extracurricular activity (must be sanctioned by a college/school dean, and/or the Executive Vice President and Provost), due to military service, or due to a personal medical or legal **emergency**. If the absence is due to religious observances or university-sanctioned events, you must notify the instructor via WebCampus email by specified date. If the absence is due to a personal emergency, within 3 business days of the missed exam you must provide original documentation (NOT A COPY) on official letterhead, signed

by a physician or legal authority justifying the absence. In the case of an appropriately documented excused absence, a make-up exam may be administered. Make-up exams may consist entirely of essay questions. Unexcused absence from an exam will result in a score of ZERO.

A comprehensive final will be given at the designated time for this course. All students MUST take the final exam. The final exam time is different from the lecture time. A student who misses the final exam will earn a failing grade or an incomplete (see below).

Supplemental Instruction:
Additional instruction specific to this course is available and provided through the Academic Success Center (ASC). Questions regarding course content should be asked during SI classes and/or office hours.

Grading:
Final course percentages are calculated from the distribution below. There will be no extra credit for any reason.

5% In class participation/Assignments
20% Lecture Exam (highest score of 3 exams)
20% Lecture Exam (2nd highest score of 3 exams)
25% Comprehensive Final Exam
30% Laboratory Grade

The course grade will be assigned based on the following guidelines:

%	100 – 88.5	88.4 – 78.5	78.4 – 68.5	68.4 - 60	59.9 - 0
Grade	A/A-	B+/B /B-	C+/C /C-	D	F

Laboratory:
Attendance is required at all laboratories and will be taken during every lab session by the lab instructor within the first two hours of lab. Students who have unexcused absences in THREE or more labs will automatically receive a failing grade for the entire course. Excused absences are granted only for medical/legal reasons that are validated in writing by a physician/legal authority on official letterhead and approved by the lab instructor. Additional laboratory policies will be provided by the laboratory coordinator.

Tutoring:
The School of Life Sciences operates a Biology Learning Center in White Hall, Room 126. Any questions concerning content of lectures should be asked either during Supplemental Instruction and/or at the tutoring center first. Only in the case that a question cannot be resolved by the SI and/or at the tutoring center, should a student come to office hours. To be seen, the student should bring the name of the tutor that they worked with at the Learning Center. The Learning Center will be open from 9:00am-6:30pm (M-R) and 9:00am-1:00pm (F). Updates will be posted on the course Webcampus site and announced in lecture.

UNLV POLICIES

Academic Misconduct — Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the Student Academic Misconduct Policy (approved December 9, 2005) located at: https://www.unlv.edu/studentconduct/student-conduct.

Copyright — The University requires all members of the University Community to familiarize themselves **with** and to follow copyright and fair use requirements. **You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws.** Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: http://www.unlv.edu/provost/copyright.

Disability Resource Center (DRC) — The UNLV Disability Resource Center (SSC-A 143, http://drc.unlv.edu/, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

Religious Holidays Policy — Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit:
http://catalog.unlv.edu/content.php?catoid=6&navoid=531.

Transparency in Learning and Teaching — The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information:
https://www.unlv.edu/provost/teachingandlearning
https://www.unlv.edu/provost/transparency

Incomplete Grades — The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving "I" grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

Tutoring and Coaching — The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit http://www.unlv.edu/asc or call 702-895- 3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

UNLV Writing Center — One-on- one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: http://writingcenter.unlv.edu/.

Rebelmail — By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always **@unlv.nevada.edu**. **Emailing within WebCampus is acceptable**.

Library Resources — Students may consult with a librarian on research needs. For this class, the subject librarian is https://www.library.unlv.edu/contact/librarians_by_subject. UNLV Libraries provides resources to support students' access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at https://www.library.unlv.edu/.

Final Examinations — The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: http://www.unlv.edu/registrar/calendars.

This syllabus is subject to change at the discretion of the instructor.

Principles of Modern Biology I

BIOL 196 Spring 2016

Date		Lecture Topic	Chapter(s)	Laboratory Schedule
Jan	19	1.1: Class Introduction / Principles of Life	1	**NO LAB**
	21	1.2: Life Chemistry and Energy	2	
	26	1.3: Life Chemistry and Energy	2	Science – A Process
	28	1.4: Nucleic Acids, Proteins, and Enzymes	3	
Feb.	2	1.5: Nucleic Acids, Proteins, and Enzymes	3	pH and Buffers
	4	1.6: Cells: The Working Units of Life	4	
	9	1.7: Cells: The Working Units of Life	4	Organic Molecules
	11	2.1: Cell Membranes and Signaling	5	
	16	**EXAM 1: Components of Cells (1.1 – 1.7)**	**2 – 4**	**NO LAB**
	18	2.2: Cell Membranes and Signaling	5	
	23	2.3: Pathways That Harvest and Store Energy	6	Eukaryotic Cells and Osmosis
Mar.	1	2.4: Pathways That Harvest and Store Energy	6	Enzymes
	3	2.5: The Cell Cycle and Cell Division	7	
	10	2.6: The Cell Cycle and Cell Division	7	Respiration and Photosynthesis
	15	3.1: Inheritance, Genes, and Chromosomes	8	
	17	**EXAM 2: Cellular Pathways (2.1 – 2.6)**	**5 – 7**	DNA Fingerprinting
	22	Spring Recess		
	24	Spring Recess		Meiosis
	29	3.2: Inheritance, Genes, and Chromosomes	8	
	31	3.3: DNA and Its Role in Heredity	9	**NO LAB**
Apr.	5	3.4: DNA and Its Role in Heredity	9	
	7	3.5: From DNA to Protein: Gene Expression	10	DNA Replication, Transcription, and Translation
	9	3.6: From DNA to Protein: Gene Expression	10	
	12	4.1: Regulation of Gene Expression	11	PCR, Bacterial Transformation - I
	14	**EXAM 3: DNA to Genes (3.1 – 3.6)**	**8 – 10**	
	19	4.2: Regulation of Gene Expression	11	PCR, Bacterial Transformation - II
	21	4.3: Genomes	12	
	26	4.4: Genomes	12	ELISA
	28	4.5: Biotechnology	13	
May	3	4.6: Biotechnology	13	Analyzing Eukaryotic DNA Sequence
	5	**Review**		

Final	12	**FINAL EXAM 10:10-12:10pm**	**2 – 13**	

IMPORTANT DATES

January 29, 2016 – Last Day to Notify Instructor of Conflicts with Exam Dates Due to religious observance, military service or official UNLV extracurricular activities (use *Webcampus* to contact Dr. Tseng).

April 1, 2015 – Final Withdrawal Date