

SYLLABUS
BISC 101Lxg,
Cellular and Molecular Biology: From the Cell to Human Life
13002R Fall 2015
Raffaella Ghittoni, Ph.D.

Brief Description:

This GE course (Category III: Scientific Inquiry) is designed to give undergraduates an introduction to structures and functions of the cell as the smallest form of a living organism. The course will also describe, at genetic and molecular level, cellular components, cell reproduction and the mechanisms of cell regulation. For several of these topics, dysfunctional aspects (e.g. mutations, genetic diseases, cancer etc.) will be mentioned as examples and basic techniques and methodologies currently used by scientists will be introduced.

Although there is no prerequisite, general knowledge of introductory biology and chemistry at the high school level is helpful.

Please note that this course is **not** designed for those majoring in biology or the related health sciences. BISC 101 does not satisfy the requirements for accreditation in any pre-health area of which we are aware, and should not be used in an attempt to satisfy admission requirements into one of the health professions. We do not support, and will not provide help, in using this course for such a purpose.

Lecturer:

Raffaella Ghittoni, Ph.D. rghitton@usc.edu Office Hrs: Tue 4-6 Room ZHS 258

Lecture hours: Wednesday/ Friday from 3:30 pm to 4:50 pm Room MHP 105

Instructional Laboratory Manager:

TBD

Teaching Assistants:

TBD

Course Textbook:

Lecture: **Biology: Life on Earth with Physiology (+ Mastering Biology)** by T. Audesirk, G. Audesirk and B. E. Byers. Pearson. 10th edition

E-book copy ISBN: 9780321834782

Loose leaf ISBN: 9780321844828

Paper copy ISBN: 9780321834195

Online Course Materials:

Supplemental course materials and announcements will be posted on the Blackboard website. Your USC e-mail username and password will allow you to access the secure site: <https://blackboard.usc.edu> (if you have trouble with Blackboard, please contact blackboard@usc.edu)

Students are responsible for checking additional postings and announcements on Blackboard website on a weekly basis.

Please see separate additionally Laboratory syllabus and schedule posted on

Blackboard.

Syllabi may slightly change during the semester.

Exam dates are **firm**

E-mails: Course E-mails will be sent only to your official USC email address

Grading:

| | |
|-----------------|-----|
| Attendance quiz | 5% |
| Laboratory | 20% |
| Midterm I | 25% |
| Midterm II | 25% |
| Final exam | 25% |

Grade determination and final examination details:

Tests and final exam are marked on a numerical basis. The 4 exams worth 100 points each for a total of 400 points. The total points will be then converted to letter grades.

Course Policies:

- 1) Exam dates are firm. There are no makeup exams in the course. Performance on the final may be prorated to substitute for a missing midterm exam, if an excuse considered valid by faculty is presented in a timely fashion. An acceptable written excuse or documentation must be provided to the faculty. The final exam will be administered only on the date and time set by the University.
- 2). Midterm exams will be returned to students by the professor during lectures. The TA will return lab tests to students during lab section. The final examination will not be returned but will be retained for one semester by the faculty.
- 3) Regrades: If you think an answer you have provided was graded incorrectly or if there is an arithmetic error, you may seek a regrade. You must provide a written explanation of why you think your answer was graded incorrectly. Regrade requests are to be submitted to your TA. If a regrade is agreed upon, then the ENTIRE EXAMINATION may be subject to a regrade. Your grade may therefore go up, go down, or remain the same. Regrade requests must be received within one week of when the exam key is posted for midterms, or by the second week of classes the following semester for the final exam.
- 4) No special assignments for extra credit are permitted.
- 5) Academic integrity policies of the University will be strictly followed. Infractions can result in severe penalties. There may be assigned seating for exams. No student may be admitted to an exam after the first student has left the exam.

Statement on academic integrity: USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own

academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A:

<http://www.usc.edu/dept/publications/SCAMPUS/gov/>. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.

6) Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to the professor as early in the semester as possible. DSP is located in STU 301 and is open 8:30 AM – 5:00 PM, Monday thru Friday, Phone number: 213-740-0776.

7) It may be necessary to make adjustments to the syllabus during the semester. Check the course website or class announcements on Blackboard for updates. **Exam dates will not be changed.**

8) Any questions or concerns regarding these policies should be addressed to the faculty.

Lectures and Exams Schedule BISC101Lxg Spring 2015

| Weeks | Date | Topics Covered | Reading assignment |
|--------------|---------------|---|---------------------------|
| Week 1 | 26-Aug | Course introduction and syllabus description | Ch.1 |
| | 28-Aug | Exploring life on earth (Introduction to life on earth) | Ch.1 |
| Week 2 | 2-Sep | Sharing is Caring: covalent bonds and beyond (Atoms, molecules, and life I) | Ch.2 |
| | 4-Sep | Sharing is Caring: covalent bonds and beyond (Atoms, molecules, and life II) | Ch.2 |
| Week 3 | 9-Sep | Organic molecules: the Carbon supremacy (Biological molecules I) | Ch.3 |
| | 11-Sep | Fats, Sugars, Proteins and ...a pinch of Nucleic Acids: The recipe for Life (Biological molecules II) | Ch.3 |
| Week 4 | 16-Sep | The basic unit of life: The Cell (Cell structure and functions I) | Ch.4 |
| | 18-Sep | Inside the cell engine (Cell structure and functions II) | Ch.4 |
| Week 5 | 23-Sep | Two levels of complexity: prokaryotes vs eukaryotes (Cell structure and functions III) | Ch.4 |
| | 25-Sep | The Fluid Mosaic: a Biological Masterpiece (Cell membrane structure and functions I) | Ch.5 |
| Week 6 | 30-Sep | Compartments: A Place for Everything and Everything in its Place (Cell membrane structure and functions II) | Ch.5 |
| | 2-Oct | In & Out: How cell communication works (Cell membrane structure and functions III) | Ch.5 |
| Week 7 | 7-Oct | The tiniest power plant (Energy: ATP & Enzymes) | Ch.6 |
| | 9-Oct | Midterm I | Ch. 1-6 |
| Week 8 | 14-Oct | From 1 to 2. Cell division and heredity: Mitosis (Cellular reproduction I) | Ch.9 |
| | 16-Oct | Sex and the Cell: Meiosis (Cellular reproduction II) | Ch.9 |
| Week 9 | 21-Oct | Shuffling the deck. Cell division and genetic variability (Cell reproduction III) | Ch.9 |
| | 23-Oct | Cancer: Losing Control (Cell reproduction IV) | Ch.9 |
| Week 10 | 28-Oct | Gregor Mendel and the "magic peas" (Patterns of Inheritance I) | Ch.10 |
| | 30-Oct | Mendel's laws (Patterns of Inheritance II) | Ch.10 |
| Week 11 | 4-Nov | Inheriting from mom and dad (Patterns of Inheritance III) | Ch.10 |
| | 6-Nov | Midterm II | Ch. 9-10 |
| Week 12 | 11-Nov | DNA: the blueprint of life (DNA molecules I) | Ch.11 |
| | 13-Nov | DNA structure and replication (DNA molecules II) | Ch.11 |
| Week 13 | 18-Nov | Message in a molecule (Gene expressions I) | Ch.12 |
| | 20-Nov | The genetic code: Nature's Alphabet (Gene expressions II) | Ch.12 |
| Week 14 | 25-Nov | Thanksgiving recess | |
| | 28-Nov | Thanksgiving recess | |
| Week 15 | 2-Dec | Cracking the code (Gene expressions III) | Ch.12 |
| | 4-Dec | It's all about that "base" (Gene expressions IV) | Ch.12 |
| FINAL | 14-Dec | Final Examination from 02:00 pm to 4:00 pm | |