

**BIOLOGY 1001. Human Biology.** Spring, 2013. (4.0 credits).  
**Human Biology** – 11 day sections (Sections 001-010, and 013).



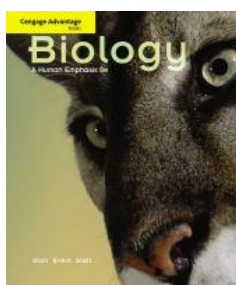
Human Biology (Bio 1001) meets the Science & Technology 1st Level core requirement. There are no prerequisites or corequisites for Biology 1001. Human Biology cannot be used for credit toward a major in Biology.

Human Biology is an introduction to the principles of biology using humans as a model organism. The course covers the scientific method, biomolecules; cell theory, cell reproduction, heredity, human genetics, development, structure and function of the human body; and genetic engineering and biotechnology. Lecture and lab is combined, and must be taken together to receive credit for the course.

**Lecture for Human Biology.** Lecture: 9:30 AM – 10:50 AM Tu and Th, Beury Hall Room 160.

Lab for Human Biology: Laboratory meets weekly in Room 151 Biology Life Sciences Bldg. Labs meet on Tuesday through Friday during the Spring semester.

**Lecture Instructor:** Gregory Smutzer, Ph.D. Office: Biology Life Sciences Building, Room 442, Biology Life Sciences Building (SW corner of 4<sup>th</sup> floor), Temple Main campus. Phone: (215) 204-1236.



**Textbook:** Biology, A Human Emphasis, 8e. 2011. Starr, Evers, and Starr. Cengage Advantage Books, Brooks Cole Publishing. Photo at left is the cover for the softbound textbook.

1. **e-book** at TU Bookstore: Starr/Evers/Starr. MindTap Instant Access for Starr/Evers/Starr's Biology: Concepts and Applications, 8th Edition. ISBN is 1-2854-0501-3.
2. **Direct to consumer** website: Complete Starr/Evers/Starr e-book from Cengage is at: [www.cengagebrain.com](http://www.cengagebrain.com)  
<http://www.cengagebrain.com/shop/en/US/storefront/US?cmd=CLHeaderSearch&fieldValue=Starr+Evers+Starr> {scroll down to view textbook}
3. **Individual e-chapters** of Starr/Evers/Starr textbook from Cengage website is \$5.00 per chapter.
4. **Soft cover book** (32 chapters). ISBN: 0-538-75702-7. \$149.49 from Cengage Publishing – can purchase new textbook, or can rent the book for one semester.

**Grading:** This course has both a lecture and a laboratory component. The lab will comprise 25% of the course grade. Labs will meet once a week starting this week, and you will have a teaching assistant or Ms. Vleck for lab. Ms. Evelyn Vleck is the lab coordinator. Questions concerning the lab should be directed to your laboratory instructor. A lab syllabus and a course contract will be made available to you during your first lab meeting. Labs are held every week during the semester. Mandatory safety training will be held during week one of lab. Please remember that attendance for lab is **mandatory**.

The lecture component will comprise 75% of your final grade. For the lecture component, there will be two exams during the session and a final exam. The three exams will make up 65% of your final grade. Exams I and II will have approximately 100 questions, and will contain approximately 80 multiple-choice questions, and up to 20 true-false questions. The final exam will **NOT** be comprehensive, but will have approx. 140 questions. Scantrons will be used for all three lecture exams. Please bring a number 2 pencil to the exam. **EXAMS WILL BE HELD IN BEURY 160, and a second location on campus. The second location will be announced on Blackboard one week before the exam.**

The remaining 10% of your lecture grade will be from announced quizzes and in-class assignments. Quizzes will be closed book, and taken in class. Quizzes are normally 7 – 8 MC and TF questions. All quizzes will have equal weight, and will comprise 6% of your final grade. Quizzes will be displayed on the screen in the front of the room. If you have trouble reading small print, please sit near the front of the room. You may want to consider a pair of **opera glasses** if you have problems reading the quiz questions and do not wish to sit in the lower level of seats in Beury 160.

Finally, in-class assignments will usually be taken after every chapter, and we will go over the answers together in class.

**Fire Alarm during exam.** In case of a fire alarm during an exam, place your exam and Scantron face down on your desk, and immediately exit the room.



Finally, remember that a grade of **C minus or better** is required to receive credit for this course.

Exam 1	21.00 % (comprehensive). Please bring a No. 2 pencil for all exams.
Exam 2	21.00 % (not comprehensive)
Final Exam	23.00 % (not comprehensive, but a two hour exam)
Announced quizzes	6.00 % (approximately three quizzes).
In class assignments	4.00% (usually one in class assignment per chapter)
Lab grade	25.00 % (Attendance at labs is <b>mandatory</b> ). Please do not miss lab without an excuse.

**Grading Scale for Final Grade. THIS IS THE CURVE! No incomplete grades (I grades) will be given.**

<b>88% - 100%</b>	<b>A (For Exams I and II, take your Scantron score, and multiply by one)</b>
<b>78% - 87.9%</b>	<b>B</b>
<b>55% - 77.9%</b>	<b>C</b>
<b>50% - 54.9%</b>	<b>D</b>
<b>&lt;50%</b>	<b>F</b>

**Incompletes.** Incompletes are not normally given in Human Biology. If you request an incomplete due to medical reasons, you will need to contact your academic advisor. I will need a note from your academic advisor in order to issue an incomplete. Please note that **>50%** of the coursework must be completed in order to issue an incomplete.

**Lecture Attendance.** Attendance at the lecture is **very strongly** recommended during the semester.

**Makeup exams:** If an hourly exam is missed due to a medical or legal reason, you **MUST** schedule to take the exam during final exam time after you have completed the lecture exam. (Thursday, May 9<sup>th</sup> 8AM -10:15 AM). **There will be no exceptions.** No more than one lecture exam can be made up during the semester. In order to take a make-up exam, written documentation will be required during the final exam time. Written documentation includes medical, dental, and legal excuses from your physician, dentist, or lawyer. Notes from PAs, chiropractors, auto repair technicians, being a contestant on American Idol, public transit problems, and podiatrists are generally not accepted.

I will need a copy of the documentation for my files. **PLEASE BRING YOUR MEDICAL OR LEGAL EXCUSE WITH YOU, AND TURN IN YOUR EXCUSE JUST AFTER YOU FINISH YOUR FINAL EXAM ON MAY 9<sup>th</sup>.** If a medical, dental, or legal excuse is not presented by the student, then each missed exam will result in a grade of zero percent. **All makeup exams will be multiple-choice, short answer and completion questions. Makeup exams will include very few true-false questions, and have a limited number of multiple-choice questions.**

**Withdrawals:** Monday, February 4, is the last day to withdraw from a course (**without** a W grade). Tuesday, March 26<sup>th</sup> is the last day to withdraw from graduate and undergraduate Courses (**with** a W grade).

**Makeup Quizzes:** If a valid excuse is presented for missing an in-class quiz, **one quiz** can be made up at the end of the semester. Make-up quizzes will be administered in Room 151 Biology Life Sciences Bldg. (11:00 AM on Tuesday, May 7<sup>th</sup> at 9:30 AM). You can only make up one quiz for Human Biology. **PLEASE BRING YOUR MEDICAL OR LEGAL EXCUSE WITH YOU, AND TURN IN YOUR EXCUSE JUST BEFORE THE MAKEUP QUIZ ON Tuesday, May 7<sup>th</sup>.** All makeup quizzes will be in Room 151 BLS. (Lab). Remember, May 7<sup>th</sup> is a study day.

**Final Exam:** The last lecture is Thursday, May 2<sup>nd</sup>. All classes end Monday, May 6<sup>th</sup>. Tuesday, May 7 and Wednesday, May 8 are study days. **Final exam is Thursday, May 9<sup>th</sup> at 8:00 AM in Beury 160, and at a second location on campus.** The final exam for lecture will **not** be comprehensive. The final exam will cover the final third of the course, and will not include any information that was not covered in lecture. Due to the large size of the class, we will not administer the exam earlier (or later) than the scheduled date for anyone who is registered for Human Biology.



**Final Exam:** If you have three or more final exams and you wish to take the final exam at a later time, please contact me no later than May 1, 2013. The alternate exam time is Tuesday, May 13<sup>th</sup> at 10:30 AM.

**Office hours:** I will be in Room 442 BLS on Mondays, Tuesdays, and Wednesdays from 1 to 2 PM during the semester. Please e-mail me if you wish to come by at another time.

**Cell Phones:** Please have consideration for your fellow students. Please turn off all cell phones and pagers before the start of each class. Due to the large size of the class, it is imperative that no talking to other students occurs during lecture or lab. Please enter the classroom before class starts. In addition, try not to leave and re-enter the classroom during lecture.

**Blackboard and Problem Sets:** Multiple-choice and True-False questions are posted on the Temple Blackboard site (<http://tuportal.temple.edu>) to help you study. To reach Blackboard, you must use the link mentioned above. You **MUST** have a temple.edu e-mail address to access Blackboard. Your **USER NAME** in your e-mail address is your logon name. Please note that these problem sets are supplemental, and are to help you learn about human biology. If you have specific questions, we won't go over the multiple-choice questions in class. If you are unsure of any answers, please ask in class or during office hours. You can also post any questions on the **DISCUSSION BOARD** in the communication section (button to left of screen) of Blackboard. **Please type in the entire question** so that I can check your answer. You can post questions anonymously. Exam questions will likely include questions from the multiple-choice questions.

**PowerPoint Slides.** I will post all PowerPoint slides one week before the date of each exam. Slides will be posted on Feb. 14, 2013 for exam I. **SLIDES WILL NEVER BE POSTED BEFORE CLASS. There are no exceptions. If you must have access to the slides, please use a digital camera or cell phone camera to capture each slide during class.**



**Academic Assistance.** The math-science center is located on the second floor of 1800 Liacouras Walk, extension 1-8466. This center provides instruction for the basic sciences, and preparation for exams. A fourth edition of Johnson, and a Starr & McMillan Human Biology textbook is also available for use.

**Temple e-mail account.** You can obtain an e-mail account online. Go to: <http://www.temple.edu/cs/>, and press "activate account." You can instantly obtain a Temple e-mail account.

### **Accommodation.**

Any student who has a need for accommodation based on the impact of a disability should contact Disability Resources and Services at 100 Ritter Annex (003-00), 1301 Cecil B. Moore Ave., Philadelphia, PA 19122. Phone number: 215-204-1280. Please fill out the **BLUE FORM** for accommodation for **each exam and lecture quiz**, have me sign it, and hand it in to the Disability Office at least three business days before the scheduled exam and quiz. If requested, an exam can be prepared in large font for individuals who are registered with DRS and wish to take the exam during normal class time. Accommodations for exams and quizzes will be made for students with documented disabilities.

### **Academic Integrity and Student Code of Conduct**

All relevant Temple University policies regarding Academic Integrity must be followed. These policies include no cheating, no plagiarism and reporting any knowledge thereof. Plagiarism is the act of presenting the intellectual work of others as if it were one's own. Please consult the Student Handbook, or the appropriate web-page (<http://oll.temple.edu/ih/writing/plagiarism2.htm>) for further information.

A copy of the Temple University Code of Conduct is posted on the Human Biology Blackboard site. In addition, a hard copy of the code of conduct will be handed out to you during your first week of lab. Please familiarize yourself with the student code of conduct.

**Student Learning Outcomes.** The student will demonstrate knowledge of fundamental information concerning biological macromolecules, the structure and function of cells, basic life processes of humans, knowledge of human heredity, knowledge of the structure and function of DNA, and knowledge of the structure and function of the major systems of the body.. **Assessment:** Basic knowledge of these facts, processes, and concepts will be quantitatively assessed through the use of quizzes, lecture exams, in class assignments and lab quizzes.

**Final Grades.** If you feel that your final grade is incorrect, we will recheck all of your grades to identify any potential errors. Please make sure that you fill in your name correctly on the blue Scantron sheets to minimize any errors. As a safeguard, you should routinely examine your posted exam, quiz, and lab grades on the course Blackboard site during the semester. If you are not satisfied with your final grade for the course, please contact the Biology Department ombuds-person, Room 159 B BLS. **Final Grades will not be changed unless a mathematical error was made during grading.**

#### **Lecture topic**

#### **Chapter in Starr Textbook (8<sup>th</sup> ed.) plus three BB readings**

##### *Invitation to Biology*

The characteristics of life  
The scientific method  
The role of science and Society  
Philosophy of Science  
Bioethics–Willowbrook Hepatitis Study, Tuskegee Study

Chapter 1

**A. On Blackboard:** Website on Tuskegee Study.

##### *Life's Chemical Basis*

All matter consists of element  
Atoms, elements, and molecules  
Chemical bonding  
Properties of water  
Acids and Bases

Chapter 2

##### *Molecules of Life*

Organic compounds  
Carbohydrates  
Lipids  
Proteins  
Nucleic acids

Chapter 3

*Cell Structure*

Chapter 4 (Skip page 65 on chloroplasts & plastids)

Introduction to cells  
Eukaryotic cells  
Membrane Structure and Function  
Cell organelles  
Endomembrane System  
Ribosomes  
Cytoskeleton  
Making ATP  
Aerobic Respiration – glycolysis, Krebs cycle  
Mitochondrial electron transport  
Anaerobic respiration (Fermentation).

*Ground Rules of Metabolism*

Chapter 5, pages 78-87.

Reactants and Products  
Enzymes  
Diffusion & osmosis  
Transport

**Exam I. Thursday, Feb 21, 2013. Bring your Temple ID and a # 2 pencil with eraser. Only information covered in class as of Tuesday, Feb. 19<sup>th</sup> will be on the exam. Remember: Class will be split into two rooms for Exam I.**

*DNA Structure and Function*

Chapter 8 (Sections 8.1 - 8.6 only. Section 8.8 is later)

Eukaryotic Chromosomes– Histones and nucleosomes  
The building blocks of DNA  
DNA structure and DNA replication  
DNA repair

*From DNA to Protein*

Chapter 9

The Genetic Code  
Gene transcription, and protein translation  
Ricin and protein translation  
Introns and Exons  
Mutated genes and their protein products  
Transposons (transposable elements)  
Regulating gene activity

*How Cells Reproduce*

Chapter 11

Immortalized cells  
Apoptosis  
Multiplication by Division  
Cell Reproduction: One cell becomes two (mitosis)  
The cell cycle and cytokinesis  
How cell reproduction is regulated

*Meiosis and Sexual Reproduction*

Chapter 12

The process of Meiosis  
How Meiosis Introduces Variations in Traits  
Crossing Over during Meiosis II  
Comparison of mitosis and meiosis

*Observing Patterns in Inherited Traits*

Chapter 13

Genetics and Inheritance  
Mendel, Pea Plants, and Inheritance Patterns  
Law of Segregation  
Law of Independent Assortment  
Genetic crosses and Test crosses  
Independent assortment  
Multiple effects of single genes  
Non-Mendelian inheritance in humans  
    Incomplete dominance  
    Pleiotropy  
    Penetrance  
    Multiple allele systems

Codominance  
Polygenic traits

*Human Inheritance*

Chromosomal basis of inheritance  
Sex chromosomes and sex determination  
X inactivation (not covered in textbook)  
Human genetic analysis  
Autosomal and X-linked inheritance  
Heritable changes in chromosomal structure  
Heritable changes in chromosome number  
Genetic disorders

Chapter 14

Chapter 8, Pages 124-125 on eukaryotic chromosomes

*Biotechnology*

Restriction and modification of DNA, RFLP analysis  
DNA plasmids and gene cloning  
PCR, Forensics, and DNA fingerprinting  
Next Gen DNA sequencing, fetal DNA sequencing  
Genomics, SNPs, VNTRs.

Chapter 15.

**A. “The Wrong Man” In *When Science Goes Wrong* by S. Le Vay (2008). On Blackboard.**

**B. Canine DNA database article On Blackboard.**

CODIS, Canine DNA database.  
Gene transfer in animals and plants  
Recombinant Protein production in bacteria and cell lines  
Recombinant vaccines  
Human gene therapy, Genet. modified humans  
Bioremediation  
Cloning of mammalian organisms  
animals  
Therapeutic cloning  
Embryonic and Adult Stem cells

Chapter 8, Sec. 8.7 “Using DNA to Duplicate of Existing Mammals,” pp. 132-133.

Chapter 28. Page 449 only.

**Exam II. Thursday, April 4, 2013. Bring your Temple ID, yourself, and a #2 pencil.**

*Immunity*

Components of Blood  
Blood typing

Chapter 34. Pages 558-559, 569 only.

*Circulation*

Hemoglobin and oxygen transport in blood  
Blood typing and agglutination  
Hemostasis and Blood Clotting  
Heart and Blood Vessels  
Blood vessels transport blood  
Overview of the circulatory system  
The heart: A durable pump  
Circulation of blood  
How the heart contracts  
How the heart pumps blood, cardiac cycle  
Blood pressure and velocity  
Arteries, veins, and capillaries  
Hemostasis and blood clotting. Cardiovascular disorders

Chapter 33

*Neural Control*

Action potentials  
Chemical synapses  
Information pathways  
Central and Peripheral nervous systems  
Autonomic nervous system  
Brain structure  
The cerebrum  
Memory and consciousness  
Neuropsychiatric diseases and disorders  
Sensory Systems – olfaction, taste

Chapter 29

**Final Exam & Any Lecture Make-up Exams:**

9:30-10:50	T R	Thursday	5/9	8:00-10:00
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**Remember:** Don't miss lab without a valid excuse. Missing two or more labs without a valid excuse will **LOWER YOUR FINAL GRADE BY ONE LETTER GRADE.**

**Remember:** If you missed a lecture exam with a valid excuse, you will need to make it up immediately following the final exam on May 3rd, **during the time scheduled for the final exam.** Only one makeup lecture exam can be taken. Makeup exams will be multiple-choice, short answer, and completion questions.

**Remember:** You **MUST** bring your Temple ID and a number two pencil for all three lecture exams. A pencil sharpener will be available for you to use.

**Remember:** Makeup quizzes will be on **Friday, May 3rd** at 11:00 AM in Room **151 BLS** (Lab). Only one quiz can be made up during the Spring 2013 semester.

**Remember:** No makeups will be given for missed in-class assignment.

**Remember:** For missed in-class assignments, please bring a valid excuse to Room 442 after class, and your missing grade will be prorated (based on grades from your other in-class assignment grades).

**Spring recess** is March 10<sup>th</sup> to March 17<sup>th</sup>.



**Please remove this page from the syllabus, and return this page at the end of class on Tuesday.**

Name \_\_\_\_\_

Last four digits of TU ID. \_\_\_\_\_ Lab Section or Time \_\_\_\_\_

Please **initial** each line below, and return at the end of class on Tuesday, January 22, 2013.

- \_\_\_\_\_ 1. I understand that excessive talking during class is discourteous to other students, and that talking should be minimized during class time.
- \_\_\_\_\_ 2. I understand that makeup lecture exams will be given during the final exam time period (Thursday, May 9th, 8 AM – 10:15 AM), and will include MC, very few TF, and completion questions.
- \_\_\_\_\_ 3. I understand that makeup quizzes will be administered at 9:30 AM on Tuesday, May 7th in Room 151 BLS.
- \_\_\_\_\_ 4. I understand that I cannot schedule the final exam earlier than the scheduled date of 8 AM on May 9th.
- \_\_\_\_\_ 5. I understand that I should bring a number 2 pencil with eraser to class for all exams and quizzes.
- \_\_\_\_\_ 6. I understand that one or more quizzes will be given in class by projecting the questions on the large screen in the front of the classroom. The screen will show up to four questions at a time.
- \_\_\_\_\_ 7. I understand that ALL PowerPoint slides will be posted on Blackboard one week before each exam.
- \_\_\_\_\_ 8. I understand that the first and second lecture exams will normally have 100 questions, and these questions will be multiple-choice and true-false. Final exam will have approx. 140 questions.
- \_\_\_\_\_ 9. I understand that extra-credit cannot be extended to individual students. Extra-credit questions for all students will be included in all three lecture exams unless excessive talking occurs during lecture.
- \_\_\_\_\_ 10. I understand that the final exam starts at 8 AM on Thursday, May 9th, and that time is different from the normal start time for lecture.
- \_\_\_\_\_ 11. I understand that the class will be split according to lab section into two rooms for the three lecture exams.
- \_\_\_\_\_ 12. I understand that a grade of C minus or better is required in order to pass Human Biology.
- \_\_\_\_\_ 13. I understand that if I fill out a quiz or in-class assignment for a member of the class who is not present, I will fail the class with a final grade of **F**.
- \_\_\_\_\_ 14. I understand that if I cheat during a lecture exam, I will receive a zero for that exam.
- \_\_\_\_\_ 15. I understand that my final grade for Human Biology cannot be changed except in the case of a mathematical error.