

ANTH 3307 / BIOL 3307: EVOLUTIONARY MEDICINE

ANTH 2307 001 / BIOL 3307 001
Fall 2017
11:00 - 11:50 MWF
09 University Hall

Dr. Shelley L. Smith
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Required Books: Stearns, Stephen C., and Medzhitov, Ruslan (2016). *Evolutionary Medicine*. Sunderland, MA: Sinauer Associates, Inc.

Lieberman, Daniel E (2014). *The Story of the Human Body: Evolution, Health, and Disease*. New York: Random House (Vintage).

Other required readings will be posted to Blackboard.

This course provides a survey of the relatively new field of Evolutionary Medicine. The two core books are written by biologists (Stearns and Medzhitov) and by a biological anthropologist (Lieberman); throughout the course, we will cover topics in evolutionary biology as related to medicine from both anthropological and biological perspectives. The course will demonstrate the application of evolutionary theory to your everyday life.

Student Learning Objectives

By the end of this course, you should be able to do the following:

1. Explain how the forces of evolution work and the relevance of an evolutionary perspective to medicine, using a variety of examples
2. Distinguish between different levels of causal explanation (proximate and ultimate) and explain why both are important and complementary
3. Describe the concepts of mismatch and trade-offs and their significance in a medical context

Course Outline

N.B.: *As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. **Dates below are estimated and may be changed**; you are responsible for coming to class and checking Blackboard for changes in the schedule.*

Part I. Introduction and General Principles

August 28 – September 1
Lieberman Preface and Introduction
Trevathan (Blackboard)
Nesse (Blackboard)

September 6 – September 11
Stearns and Medzhitov, Chapters 1-3

September 13 – September 25
Lieberman, Chapters 2-6

Exam 1: Estimated Date: Wednesday, September 27

Part II. Disease; Aging; Reproduction and Development

Infectious Disease and Immunity: September 29 – October 6
Stearns and Medzhitov, Chapters 4 and 5
Sharp et al. (Blackboard)

Cancer: October 9
Stearns and Medzhitov, Chapter 6

Aging and Senescence: October 11 and 13
Crews and Stewart (Blackboard)

Reproduction and Development: October 16 – October 27
Stearns and Medzhitov, Chapter 7
Bribiescas and Ellison (Blackboard)
Kuzawa (Blackboard)

Mismatch Concept (Introduction): October 30
Stearns and Medzhitov, Chapter 8
Lieberman, Chapter 7

Exam 2: Estimated Date: Wednesday, November 1

Part III. Diet and Exercise; Sleep; Psychiatry; Public Health

Diet and Exercise: November 3 – November 15

Lieberman, Chapters 8-12

Leonard (Blackboard)

Johnson and Andrews (Blackboard)

Pontzer (Blackboard)

Chronobiology and Sleep: November 17 – November 27

Summa and Turek (Blackboard)

Stickgold (Blackboard)

Worthman (Blackboard)

Nunn et al. (Blackboard)

Yetish et al. (Blackboard)

Mental Disorders and Psychiatry: November 29 and December 1

Stearns and Medzhitov, Chapter 9

Wenegrat (Blackboard)

Public Health: December 4

Stearns and Medzhitov, Chapter 10

The Future? December 6

Lieberman, Chapter 13

Stearns and Medzhitov, Chapter 11

Exam 3 (assigned final exam time): Wednesday, December 13, 11:00 am to 1:30 pm

Assignment Due Dates

All assignments are due in **hard copy before 5:00 pm** on the due date. These are **final** deadlines; you are encouraged to turn in work before these final dates!

Term Paper,

Topic Approval, September 18

Sources, October 16

Final Paper, November 29

First News Story Report, October 6

Second News Story Report, November 8

Grade points breakdown: three exams (50%), term paper (20%), two news story reports (16%), and seven quizzes (14%).

Exams

The exam on which you earn the best score will count 20%; the other two exams will be worth 15% each. Exam 3 will be given during the final examination period, but it will not be a cumulative examination (i.e., it will test primarily material covered during the final section of the course). However, you should be prepared to relate the material learned in Part III of the course to general concepts learned previously. Exams will be mixed format, consisting of both “objective” questions (e.g., matching, multiple choice, etc.) and short answer/essay questions. Due to the extended length allotted for Exam 3, expect more writing on this last exam. The Honor Code will be printed as the cover sheet for each exam and must be signed to receive credit for the exam. Although assignments will not have an Honor Code cover sheet, it is understood that you will abide by the Honor Code for all work in this course.

The UTA Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

Make-up examinations (i.e., different versions of an exam covering the same course content given after the time of the scheduled exam) will *not* be given. In the event that you miss *one* exam due to illness or an emergency situation, the points for that exam will be distributed evenly between the two remaining exams (each of the other two will be worth 25%). If you miss *two* exams for *any* reason, you will receive an incomplete or will fail the course, depending upon my judgment of the individual circumstances. It should be unnecessary to state (but I will anyway) that lying about or otherwise misrepresenting an illness or emergency situation in order to escape taking an exam will be considered a case of academic dishonesty.

If you miss an exam due to a "minor" difficulty and you contact me within 24 hours of the time of the exam, and if you do not discuss the exam with anyone prior to taking it, you may be allowed to take the same exam as the rest of the class. (For example, maybe your car breaks down, or you get stuck in traffic.) Please note that this is a contingency plan for unavoidable situations causing short-term delay. *Contact me as soon as possible.* There is no guarantee that you will be allowed to take the exam, and missing an exam without an acceptable excuse will result in a grade of zero for that exam. If you know ahead of time that you cannot make an examination, discuss the problem with me *before* the exam.

Term Paper and News Story Reports

There are three steps to complete for the term paper: topic approval (2%), approval of sources to be cited (2%), and submission of the final paper (16%). A form for topic approval is attached to this syllabus. Papers *must* be written on the approved topic. If a topic, or a change in topic, is approved after September 18, you will lose the 2% of the grade devoted to this step. (Note that you still need approval for any change in topic.) I advise proposing a topic at least one week prior to the final deadline; it often takes more than one attempt to gain approval for a term paper topic. Sources for the paper must also be approved. Ordinarily I expect 10 or more sources derived from primary academic literature. After approval, substitution of up to 4 sources can be made with no penalty, but you are urged to be cautious in substituting any non-approved sources for those already approved. (You may of course add more sources.) As with topic approval, failure to meet the deadline for approval of sources will result in the loss of 2% of your grade points. I expect the *text* portion of the paper (excluding the list of references and

any tables, figures, etc.) to be a *minimum* of 8 pages in length (176 lines); the *recommended* length is 10-11 pages (220-253 lines of text). The paper should be double-spaced in 12 point font (Times New Roman or similar); margins should be set at 1 inch on both right and left. Papers must be received in **hard copy** by me or signed and dated with the exact time by a departmental staff member before being placed in my departmental mailbox (UH 430). The late penalty, for any submission of the final paper, past 5:00 pm on the due date of November 29 is 10 points (one letter grade) for each weekday late.

For the News Story Reports, you will choose stories you find in the news (generally published within the past year) that relate to the topics covered in this course or other topics that can be analyzed from the perspective of evolutionary medicine. In your reports, you will demonstrate your knowledge of the application of evolutionary theory to the medical condition/topic discussed in the story. Each of the News Story Reports should be approximately 4 pages (ca. 100 lines) in length. (Follow the formatting described above for the term paper.) While approval of stories is not required, you may wish to show me the stories in advance to be sure they are appropriate for this course.

You must cite sources using proper academic style. Ask if you need help! Note that "*I will appropriately reference any work from other sources*" is directly mentioned as a part of the Honor Code. Make note of the Library and Writing Center information in the "fine print" section below. **BONUS:** If you submit documentation prior to November 15 from your attendance at a **Writing Center** session for help with your term paper or a News Story Report, I will add **2%** to your final grade!

Quizzes

Periodically throughout the course, I will give a total of 9 quizzes. You may miss two with no penalty; the two quizzes on which you earn the lowest scores (including zero due to nonattendance) will be dropped. The seven quizzes that are counted will be equally weighted at 2% each. **The day of each quiz will be announced one class session in advance during class.** The goal of the quizzes is to encourage you to keep up with the reading and to ensure that you understand the material presented both in your readings and in lecture. **Quizzes will be given at the beginning of class**, so it is important that you arrive to class on time.

Further Information

If I decide it is necessary to curve the grade distribution, this will be done at the end of the course, after all the exams have been taken. Your grade will never be lowered by curving; you will always receive your "straight-scale" grade or better.

Regular attendance is expected and critical to performing well. I will present lecture material that does not appear in your readings and you will be held responsible for this material. I will keep track of attendance, and if you are "on the edge" between letter grades at the end of the course, exemplary attendance may favorably incline me to assign the higher grade. By UTA policy, I cannot drop you from the class for non-attendance; if you do wish to drop, it is your responsibility to ensure that all administrative details are completed. The final drop date for the semester is November 1.

If the building is unavailable due to a water leak, gas leak, lack of power, etc., wait for instructions in front of the main entrance to the Central Library. If the problem is with the classroom only, instructions will be posted on the door. You are responsible for finding the alternate location and for taking any exam administered. (See also Emergency Exit Procedures below.)

Electronic devices are not allowed during class unless you have a documented disability for which you have an accommodation and present me with an official form explicitly requesting this.

The “fine print”; additional information required in the syllabus:

Academic Integrity: Students enrolled in all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as “lecture,” “seminar,” or “laboratory” are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback via the SFS database is aggregated with that of other students enrolled in the course. Students’ anonymity will be protected to the extent that the law allows. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student’s responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>).

Attendance: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. (As the instructor of this section, I have decided to track attendance but not to assign any dedicated points for attendance; attendance will be considered in determining final grades “on the edge” between letter grades.) However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Final Review Week: for semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](#), [major-based learning centers](#), developmental education, [advising and mentoring](#), personal counseling, and [federally funded programs](#). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

University Tutorial & Supplemental Instruction (Ransom Hall 205): UTSI offers a variety of academic support services for undergraduate students, including: 60 minute one-on-one [tutoring](#) sessions, [Start Strong](#) Freshman tutoring program, and [Supplemental Instruction](#). Office hours are Monday-Friday 8:00am-5:00pm. For more information visit www.uta.edu/utsi or call 817-272-2617.

The IDEAS Center (2nd Floor of Central Library) offers **FREE** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in, or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

The English Writing Center (411LIBR): [Optional.] The Writing Center offers **FREE** tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at <https://uta.mywconline.com>. Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see www.uta.edu/owl for detailed information on all our programs and services.

The Library's 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation. <http://library.uta.edu/academic-plaza>

Library Home Page library.uta.edu

Academic Help

Academic Plaza Consultation Services library.uta.edu/academic-plaza

Ask Us ask.uta.edu/

Library Tutorials library.uta.edu/how-to

Subject and Course Research Guides libguides.uta.edu

Subject Librarians library.uta.edu/subject-librarians

Research Coaches <http://libguides.uta.edu/researchcoach>

Resources

A to Z List of Library Databases libguides.uta.edu/az.php

Course Reserves pulse.uta.edu/vwebv/enterCourseReserve.do

FabLab fablab.uta.edu/

Study Room Reservations openroom.uta.edu/

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a **letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability. Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.*

Title IX Policy: The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.*

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward one of the two nearest exits, located at the end of the short hallway directly in front of you once you have exited the door and turned to your left. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911.

For non-emergencies, contact the UTA PD at 817-272-3381.

Medical Disclaimer: For personal medical advice, consult your physician(s).

TOPIC APPROVAL FORM

NAME _____

DATE _____

Be specific and detailed. Write in complete sentences. Use the back of this form to continue.

I propose the following topic for my term paper:

CONTINUED →

Your topic has been approved.
Comments:

Date Approved _____
On Time (2%)? ___ Yes ___ No

Your topic has been approved,
with revision(s) as noted.
Comments:

Date Approved _____
On Time (2%)? ___ Yes ___ No
Note: Be sure to revise as indicated!

Your topic has not been approved.
Reason: ___ Not Appropriate for this course
___ Other: