

*This syllabus is subject to further change or revision, as needed, to best realize the educational goals of the course. Necessary revisions will be announced in class or on course materials with fair prior notice.*

**PRINCIPLES OF HUMAN GENETICS**  
ASM 546 and BIO 546  
Fall 2012

**Class Time:** Tuesday and Thursday 10:30-11:45 AM      **Location:** PSH 231

**Instructor:**

Dr. Anne Stone  
Life Sciences E, Room 417  
acstone@asu.edu  
tel: 480-727-6310  
office hours: Monday/Wednesday 1:30-3:00 PM

**Course Description:** The study of human genetics is of relevance to people in a number of professions including: medical doctors, biomedical researchers, pharmaceutical developers, anthropologists, evolutionary biologists, psychologists, kinesiologists, law enforcement officials, bioethicists, lawyers, historians, among others. This course will examine human molecular genetics from an evolutionary perspective to examine basic principles of human genetics, methods of analysis, the current debates about the origin and history of humans, the Human Genome Project, natural selection and adaptation, genetic disease, and ethical issues in society.

**Course web site:** All information will be available through ASU Blackboard.

**Text:** Unless otherwise noted, we will use Jobling, Hurles, and Tyler-Smith (2004) Human Evolutionary Genetics, Garland Publ.

**Extra Readings:** Additional readings for the course will be made available to the class two weeks in advance of their discussion.

**Coursework:** The final grade for the course will be based on two exams (50%), four homework assignments consisting of problem sets (20%), discussion participation (5%), and a research paper (25%). Extra credit will not be offered in this course.

**Grade scale for the class:** Grades will be scaled in the following manner:

97-100%	A+	77-79%	C+
94-96%	A	70-76%	C
90-93%	A-	60-69%	D
87-89%	B+	below 60%	E
84-86%	B		
80-83%	B-		

### **Incompletes**

A mark of "I" (incomplete) is given by the instructor when you are otherwise doing acceptable work but are unable to complete the course because of illness or other conditions beyond your control. You are required to arrange with the instructor for the completion of the course requirements. The arrangement must be recorded on the [Request for Grade of Incomplete form](http://students.asu.edu/forms/incomplete-grade-request) (<http://students.asu.edu/forms/incomplete-grade-request>).

### **Late Assignments.**

Unexcused late assignments will not be accepted. Excuses for an assignment must be made and approved in advance of the due date of the assignment.

### **Grade Appeals**

ASU has formal and informal channels to appeal a grade. If you wish to appeal any grading decisions, please see <http://catalog.asu.edu/appeal>.

### **Student Standards**

Students are required to read and act in accordance with university and Arizona Board of Regents policies, including:

The ABOR Code of Conduct: Arizona Board of Regents Policies 5-301 through 5-308:  
[http://www.abor.asu.edu/1\\_the\\_regents/policymanual/chap5/5Section\\_C.pdf](http://www.abor.asu.edu/1_the_regents/policymanual/chap5/5Section_C.pdf)

### **Academic Integrity**

All students are responsible for reviewing and following ASU's policies on academic integrity: <http://provost.asu.edu/academicintegrity>. If you fail to meet the standards of academic integrity in any of the criteria listed on the university policy website, sanctions will be imposed by the instructor, school, and/or dean. Academic dishonesty includes borrowing ideas without proper citation, copying others' work (including information posted on the internet), and failing to turn in your own work for group projects. Please be aware that if you follow an argument closely, even if it is not directly quoted, you must provide a citation to the publication, including the author, date and page number. If you directly quote a source, you must use quotation marks and provide the same sort of citation for each quoted sentence or phrase. You may work with other students on assignments, however, all writing that you turn in must be done independently. If you have any doubt about whether the form of cooperation you contemplate is acceptable, ask the TA or the instructor in advance of turning in an assignment. Please be aware that the work of all students submitted electronically can be scanned using SafeAssignment, which compares them against everything posted on the internet, online article/paper databases, newspapers and magazines, and papers submitted by other students.

### **Student Support and Disability Accommodations**

ASU offers support services through Counseling (<http://students.asu.edu/counseling>), the Learning Resources Center ([www.asu.edu/lrc](http://www.asu.edu/lrc)), and the Disability Resource Center (<http://www.asu.edu/studentaffairs/ed/drc/>). If you are a student in need of special arrangements for we will do all we can to help, based on the recommendations of these services. For the sake of equity for all students, we cannot make any accommodations without formal guidance from these services.

### **Email Communications**

All email communication for this class will be done through your ASU email account. You should be in the habit of checking your ASU email regularly as you will not only receive important

information about your class(es), but other important university updates and information. You are solely responsible for reading and responding if necessary to any information communicated via email. For help with your email go to: [http://help.asu.edu/sims/selfhelp/SelfHelpHome.seam?dept\\_pk=822](http://help.asu.edu/sims/selfhelp/SelfHelpHome.seam?dept_pk=822) and file a help desk ticket by clicking on “My Help Center.”

### **Campus Resources**

As an ASU student you have access to many resources on campus. This includes tutoring, academic success coaching, counseling services, financial aid, disability resources, career and internship help and many opportunities to get involved in student clubs and organizations.

- Tutoring: <http://studentsuccess.asu.edu/node/24>
- Learning Support Services: <http://www.asu.edu/studentaffairs/lss/>
- Counseling Services: <http://students.asu.edu/counseling>
- Financial Aid: <http://students.asu.edu/financialaid>
- Disability Resource Center: <http://www.asu.edu/studentaffairs/ed/drc/>
- Major/Career Exploration: <http://uc.asu.edu/majorexploration/assessment>
- Career Services: <http://students.asu.edu/career>
- Student Organizations: <http://www.asu.edu/studentaffairs/mu/clubs/>

For more information about the School of Human Evolution and Social Change, including our degree programs, research opportunities and advising information, please go to: [http://shesc.asu.edu/undergraduate\\_studies](http://shesc.asu.edu/undergraduate_studies). Our advisors are always willing to discuss career and guidance options with you.

## Schedule of Readings and Assignments

Dates	Topics	Readings	Additional Readings	Assignments
Aug 23	Why human evolutionary genetics?	Chapter 1		
28	General genetics background	Chapter 2-3		
30	Human genome diversity			
Sept 4	Molecular methods and techniques	Chapter 4	DISCUSSION	
6	GenBank database tools			
11				Homework #1
13	continued		DISCUSSION	
18	Evolutionary genetic forces	Chapter 5		<b>HW#1 DUE</b>
20	continued			
25			DISCUSSION	Homework #2
27	Genetic data analysis and inference	Chapter 6		
Oct 2	Molecular evolution and language	continued		
4	Human-Chimp protein evolution		DISCUSSION	<b>HW#2 DUE</b>
9		Chapter 7		
11	Primate evolutionary history		DISCUSSION	Exam #1
16				<b>FALL Break</b>
18	Modern human origins	Chapter 8		
23	continued		DISCUSSION	exam #1 due
25	Human population diversity	Chapter 9		
30			DISCUSSION	
Nov 1	Agriculture	Chapter 10	DISCUSSION	
6	Americas/Pacific	Chapter 11		
8	Admixture	Chapter 12		
13			DISCUSSION	Homework #3
15	Complex trait variation	Chapter 13	DISCUSSION	
20				<b>HW#3 DUE</b>
22	<b>THANKSGIVING</b>	<b>NO CLASS</b>		
27	Genetic disease and adaptation	Chapter 14		
29	continued		DISCUSSION	Homework #4
Dec 4	Ethics & society, personal genomics	Sudbery Chapter 11		
6	continued (guest lecture)		DISCUSSION	<b>HW#4 DUE</b>
11	Forensics	Chapter 15		exam #2
13				paper due
Dec 18	<b>Exam #2</b>			due at noon