

Anthropology 2D03

DNA and the Anthropologist

Instructor: Hendrik Poinar

Office: Chester New Hall room 537

Office hours: Mondays 3-5pm

Class Schedule: Mondays and Wednesdays from 6:30– 9:30 pm, LRW 1055. Course runs April 30th – June 13th.

Readings: There is NO textbook for this course - I will post relevant readings online at Avenue to Learn, but the bulk of your material is coming directly from in course lectures. Lectures will be 45 min followed by a 15 min break. Repeat.

Course description:

This course is an introduction to the application of molecular biology and genetics/genomics in anthropology, archeology and forensics. If this is your first introduction to DNA, that's great, have no fear. My hope is that this course will inspire you to learn more about y(our) DNA. We will discuss what DNA can tell us about human origins, patterns of global migration and colonization, phenotypic variation, selection and adaptation. We will consider the application of genetics to medicine, forensics and politics. We will discuss these topics primarily within a human context but will also consider non-human primates. We will go onto examine how the study of other organisms such as pathogens and domesticates inform our own evolutionary history.

Learning Objectives:

At the termination of this course, you will be able to:

- Learn the basics of DNA, genetics and inheritance.
- Understand the basics of human genetic analyses.
- Know how one obtains DNA sequences from a variety of tissues/samples and the ethics thereof.
- Understand how DNA can be used to address the origins of modern humans.
- Understand the role that infectious diseases have played on our genes/genomes.
- Describe how ancient DNA from fossil remains has shed light on the evolution of key pathogens and our relationships to/with Neanderthals and Denisovans.
- Understand the basics of forensic DNA typing.
- Understand the misconceptions of race from a genetics standpoint.
- Understand how changes in DNA sequences can be used to infer adaptation, domestication etc.

**Tentative Lecture Schedule (subject to change) –
13 classes total: 1 in-class final, 1 in-class midterm. 11 Lectures**

Week 1 (April 30 th and May 2 nd)	Introduction to Anthro 2D03 (what is molecular anthropology?); DNA, genes and molecular markers. Quiz 1
Week 2 (May 7 th and 9 th)	Molecular Evolution; Measuring our variation – genetic sampling and ethics. Quiz 2
Week 3 (May 14 th and 16 th)	Introduction to the genetics of populations; human origins, migrations and culture. Quiz 3
Week 4 (ONLY May 23 rd !!!)	Midterm May 23rd.
Week 5 (May 28 th and 30 th) -	Selection, adaptation and domestication; Ancient DNA, Neanderthals and free-lovin. Quiz 4
Week 6 (June 4 th and 6 th) –	Forensic genetics; Humans through the lens of infectious agents. Quiz 5
Week 7 (June 11 th and 13 th)	The genomics revolution, race and identity; Final June 13th.

Learning Assessments:

Quizzes

30% - there will be 5 quizzes on select days (see weekly outline above). They will consist of multiple choice and/or short answer – covering the topics discussed in that week. They are always at the end of a weeks worth of lectures. They are NOT cumulative. Four will count, the lowest grade will be tossed. There are no makeups for quizzes. But you can throw one out or miss it (but ONLY one!).

Midterm exam (Oct 20 th)	30% - This will be a multiple choice, short answer and one longish answer exam based upon the material in class and any readings (if applicable).
Final exam	30% - This final will be again a combination of multiple choice, short and long answer based upon the material we have read AS WELL AS the material which has been presented to you by me in class. This is a 2 hour final.
Participation	10% - I want you to participate in this class! Without it, there is little use in coming. I will take roll and base

COURSE MODIFICATION

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification become necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

SPECIAL ACCOMMODATIONS

Any student with special learning needs should contact Dr. Poinar by the end of the **second week** of classes at the latest. You must have written confirmation from Student Accessibility Services (formerly the Center for Student Development). Students can contact SAS to arrange assistance in the completion of exams. <http://sas.mcmaster.ca/>. SAS is located in **MUSC-B107 905-525-9140 x28652**

NOTE: Disclosure of disability-related information is personal and confidential.

Student Accessibility Services offers various supports for students with disabilities. We work with full time and part time students. SAS provides or assists students with their academic and disability-related needs, including: Learning Strategies, Assistive Technologies, Test & Exam Administration, Note-Taking Programs, Classroom Accommodations. Please inform the instructor if there are disability needs that are not being met. **McMaster University Policy on Academic Accommodation of Students with Disabilities & McMaster University Anti-Discrimination Policy** • <http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-StudentsWithDisabilities.pdf>

ACCESSIBILITY STATEMENT

If you require this information in an alternate/accessible format, please contact Delia Hutchinson at 905-525-9140 extension 24523 or email hutchin@mcmaster.ca

ACADEMIC DISHONESTY

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g., the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, Appendix 3, <http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf>

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g., the submission of work that is not one’s own for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations

REQUEST FOR RELIEF FOR MISSED ACADEMIC TERM WORK

The University recognizes that students periodically require relief from academic work for medical or other personal situations. This academic regulation aims to manage these requests by taking into account the needs and obligations of students, instructors and administrators. It is the prerogative of the instructor of the course to determine the appropriate relief for missed term work in his/her course. Any concerns regarding the granting of relief should be directed to the respective Faculty Office. Requests for relief should be made with a commitment to academic integrity in mind. Requests that deviate from this commitment will be handled under the Academic Integrity Policy and Student Code of Conduct, where appropriate.

Please Note: The McMaster MSAF policy has changed recently.

1. The MSAF is only valid for **3 days**
2. MSAF forms may only be submitted for assessments worth **less than 25%** of the course weight

FACULTY OF SOCIAL SCIENCES E-MAIL COMMUNICATION POLICY

Effective September 1, 2010, it is the policy of the Faculty of Social Sciences that all e-mail communication sent from students to instructors (including TAs), and from students to staff, must originate from the student's own McMaster University e-mail account. This policy protects confidentiality and confirms the identity of the student. It is the student's responsibility to ensure that communication is sent to the university from a McMaster account. If an instructor becomes aware that a communication has come from an alternate address, the instructor may not reply at his or her discretion.