

ANTHROPOLOGY 2DO3: DNA MEETS ANTHROPOLOGY

Spring 2019

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Lecture: Tu/Th 6:30-9:30 LRW 1055

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Office Hours: Tuesday 5:30-6:20 or by appointment

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Course Description

This course is an introduction to the application of molecular biology and DNA to anthropological topics. We will discuss these topics primarily within a human context but will also consider non-human primates, and will examine how the study of other organisms such as pathogens and domesticates inform our own evolutionary history. 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.

Much of the material in this course will be cumulative, in the early weeks we will discuss the basics of DNA, evolution and inheritance and we will continue to apply these concepts throughout the remaining weeks. As your instructor, it will be my role to demonstrate the relevance of these topics to anthropology but it is crucial that you understand the foundations. If you feel you are slipping behind or not grasping some of these ideas please speak up and bring it to my attention early.

Course Objectives

By the end of the course students should be able to:

1. Explain factual and conceptual basics of DNA and genetics such as inheritance, evolution and human variation.
2. Evaluate how genetic data is obtained from a sample and the ethics of sample collection and analysis.
3. Summarize the basics of genetic analyses – how do we extrapolate from As, Ts, Cs and Gs to greater functional or evolutionary meaning.
4. Describe how genetic information has informed our understanding of modern human origins, migration, relationships with archaic hominins, and adaptation.
5. Develop your ability to apply basic genetic theory to questions of anthropological importance.

Required Materials and Texts

- **There is no required textbook for this class offering.** You may find *An Introduction to Molecular Anthropology*, Mark Stoneking, ISBN:978-1-118-06162-6, a useful reference - **available from McMaster library system as both e-book and physical copy on reserve.** Any additional readings will be made available through the Avenue to Learn course shell.

Course Evaluation – Overview

1. Weekly online quizzes – 20%
2. Midterm exam – 25%
3. Final exam – 40%
4. Study guide contribution – 15%

Course Evaluation – Details

Weekly online quizzes – 20%

Each week there will be a short multiple-choice quiz on Avenue To Learn. The quiz will be available from the end of class on Thursday to the start of class the following Tuesday. You will be permitted 1 attempt at each quiz and there will be an imposed time limit. These quizzes should serve as a benchmark to assess your own understanding of the most important concepts of the week. As they will be available for five days, the online quizzes will be exempt from any MSAF requests.

Midterm exam – 25%

This in-class exam (**May 30th**) will contain a combination of multiple choice and short answer questions. In addition to testing your knowledge of factual material, the midterm will assess your ability to apply the concepts covered in class.

Final Exam – 40%

The final exam will be cumulative, and contain a combination of multiple choice, short answer and long answer questions. All material covered in class or in any assigned reading is considered testable material. Final exam will occur in-class on **June 20th**.

Study guide contribution – 15%

We will build a collective study guide throughout this course. Students will be divided into 5 groups, during each class we will take breaks to think about terminology and concepts that are new or troublesome, each group will synthesize their thoughts. Every week, one group will be assigned the task of building the appropriate “chapter” in our study guide. This grade will be assessed in three parts – the punctuality of submitting notes each week, the thoroughness of the “chapter” assigned to each group and a peer-evaluation within each group at the end of the semester.

Weekly Course Schedule

Week 1 (May 7&9)

Introduction to Molecular Anthropology, DNA basics

Week 2 (May 14&16)

Genetic sampling and ethics, Molecular evolution

Week 3 (May 21&23)

Human origins, Migration and culture

Week 4 (May 28&30)

Optional group review, Midterm exam

Week 5 (June 4&6)

Human history through alternative organisms, Selection and adaptation

Week 6 (June 11&13)

Ancient DNA and forensics, “Omics” and DNA applied to you

Week 7 (June 18&20)

Review class, Final exam

Course Policies

Submission of Assignments

All evaluations will be completed in-class or as part of the final exam.

Grades

Grades will be based on the McMaster University grading scale:

MARK	GRADE
90-100	A+
85-90	A
80-84	A-
77-79	B+
73-76	B
70-72	B-
67-69	C+
63-66	C
60-62	C-
57-59	D+
53-56	D
50-52	D-
0-49	F

Avenue to Learn

In this course we will be using Avenue to Learn. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

University Policies

Academic Integrity Statement

You are expected to exhibit honesty and use ethical behavior in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behavior 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 types of academic dishonesty please refer to the Academic Integrity Policy, located at [Academic Integrity](#).

The following illustrates only three forms of academic dishonesty:

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

Academic Accommodation of Students with Disabilities

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail sas@mcmaster.ca. For further information, consult McMaster University's Policy for [Academic Accommodation of Students with Disabilities](#).

AODA

If you require this information in an alternate/accessible format, please contact Marcia Furtado at 905-525-9140 extension 24423 or email furtam1@mcmaster.ca

Religious, Indigenous and Spiritual Observances (RISO)

The University recognizes that, on occasion, the timing of a student's religious, Indigenous, or spiritual observances and that of their academic obligations may conflict. In such cases, the University will provide reasonable academic accommodation for students that is consistent with the Ontario Human Rights Code.

Please review the [RISO information for students in the Faculty of Social Sciences](#) about how to request accommodation.

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.

Privacy Protection

In accordance with regulations set out by the Freedom of Information and Privacy Protection Act, the University will not allow return of graded materials by placing them in boxes in departmental offices or classrooms so that students may retrieve their papers themselves; tests and assignments must be returned directly to the student. Similarly, grades for assignments for courses may only be posted using the last 5 digits of the student number as the identifying data. The following possibilities exist for return of graded materials:

1. Direct return of materials to students in class;
2. Return of materials to students during office hours;
3. Students attach a stamped, self-addressed envelope with assignments for return by mail;
4. Submit/grade/return papers electronically.

Arrangements for the return of assignments from the options above will be finalized during the first class.

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 becomes 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 his/her McMaster email and course websites weekly during the term and to note any changes.

McMaster Student Absence Form (MSAF) policy

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work". Please note these regulations have changed beginning Spring/Summer 2015.

If you have any questions about the MSAF, please contact your Associate Dean's office.

<http://academiccalendars.romcmaster.ca/content.php?catoid=11&navoid=1698#Requests for Relief for Missed Academic Term Work>

USE OF COMPUTERS: Computer use in the classroom is intended to facilitate learning in that particular lecture or tutorial. At the discretion of the instructor, students using a computer for any other purpose may be required to turn the computer off for the remainder of the lecture or tutorial.