Anthropology 2D03
DNA Meets Anthropology
Course Outline

Instructor	Dr. A. Duggan
E-mail	duggana@mcmaster.ca
Office	CNH 530
Office hours	Tuesdays 3:00-5:00 PM, or by appointment
Class	Tuesdays 7:00-10:00 PM, DSB-B105
Textbook	*An Introduction to Molecular Anthropology*, Mark Stoneking, ISBN:978-1-118-06162-6, available from campus bookstore. Any additional readings will be made available through the Avenue to Learn course shell.

Overview

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 roll 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.

Intended Learning Outcomes

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 to 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.

Course Assessments

Quizzes – 20%

Following each class (excepting mid-term week), there will be a short quiz on Avenue to Learn. The quiz will be available to you for 5 days (from Wednesday mid-day to the following Monday at mid-day) and you are permitted to use any class notes, slides or textbook. You will only 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.

Mid-Term Exam – 30%

This exam will contain a combination of multiple choice and short answer questions. The exam will cover all material covered in class to date as well as assigned readings. In addition to testing your knowledge of factual material, this exam will assess your ability to apply the concepts covered in class. **The mid-term exam will be in-class on February 28th.**

Application Paper – 10%

You will research an anthropological question that you think would be well served by genetic analysis and write a brief summary of your research (maximum 1000 words, excluding citations). If this is a topic that has already been studied molecularly, discuss what further avenues of consideration could be of benefit. If your topic of interest has not yet been considered from a genetic standpoint discuss any limitation that may be hindering such research. **Papers are due March 21st.**

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 date and time to be assigned by registrar.**

Tentative Schedule

Week 1 (January 10)	Introduction to Anthrop 2DO3, What is molecular anthropology?
Week 2 (January 17)	DNA basics: Genes and molecular markers (Stoneking chapters 1, 2 and 7)
Week 3 (January 24)	Molecular Evolution (Stoneking chapters 5 and 6)
Week 4 (January 31)	Genetic sampling and ethics (Stoneking chapters 8, 9 and 3)
Week 5 (February 7)	Population genetics (Stoneking chapters 10, 11 and 12)
Week 6 (February 14)	Valentine's Day Special Topic: Ancient DNA and interspecies lovin' (Stoneking chapter 15)
Week 7 (February 21)	Mid-term recess
Week 8 (February 28)	**Mid-term exam**
Week 9 (March 7)	Human origins, migration and culture (Stoneking chapters 13, 14, 16 and 19)
Week 10 (March 14)	Selection and adaptation, domestication (Stoneking chapters 17 and 18)
Week 11 (March 21)	Forensics and medical genetics (Readings to be provided) **Paper due**
Week 12 (March 28)	Infectious disease, human history through alternative organisms (Readings to be provided)
Week 13 (April 4)	Omics and DNA applied to you, Exam review (Stoneking chapter 20)

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. Duggan 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.

- The MSAF is only valid for **3 days**
- 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.