

Anthro. 567 syllabus p. 1

Human Variation Spring, 2002

Anthropology 567 (16:070:356:01) S. Cachel

Wednesday 5th and 6th periods (2:50-5:50 P.M.), Biological Sciences Building 206 Douglass Campus

Instructor: Susan Cachel

Room 308, Adams Bldg., Douglass

(732) 932-9475 (office); 932-9886 (department) Cachel@rci.rutgers .edu

Office Hours:

Thursday, 2:30-4:30 P.M., or by appointment

Required Texts:

1. Frances Ashcroft. *Life at the Extremes: The Science of Survival*. University of California Press. 2000. (paperback).
2. Jared Diamond. *Guns, Germs, and Steel*. Norton: 1998. (paperback).
2. Elaine J. Mange & Arthur P. Mange. *Basic Human Genetics*. 2od ed. Sinauer Associates. 1999. (paperback).
3. Stephen Molnar. *Human Variation: Races, Types, and Ethnic Groups*. 5th ed. Prentice Hall. 2002. (paperback).

(All texts are available from the Cook-Douglass Cooperative Bookstore, Nichol Avenue and Lipmann Drive, Douglass Campus)

Course Requirements: Two exams will each account for 25% of the final grade. The second exam is not cumulative. A short paper (about 5-8 typewritten pages) is due on March 6th. This paper will deal with a human genetic trait or disorder using the Johns Hopkins OMIM database. This paper accounts for 20% of the final grade. A hand-out with more details on the OMIM and the short paper will be distributed during the first class session. In addition, an annotated bibliography (about 8-10 typewritten pages) will account for 20% of the final grade. This bibliography, due on April 10th, should deal with a specific topic covered in the course. The subject of the bibliography should be cleared with me. The last requirement is to study the Dahlberg/Turner dental plaques, which will be set out on March 27th, and write a 2-3 page analysis of dental variability in modern humans, noting the degree of population-level differences and its possible evolutionary significance. This paper is worth 10% of the final grade, and is

due at the last class session.

Anthro.567 syllabus p.2

Jan. 23

Introductory; History of the Study of Human Adaptation & Variation
M & M. pp. 3-13

Jan. 30

Chromosomes; DNA: Its Structure & Mutations; Cell Division & Gametogenesis
M & M, pp. 15-27, 29-43, 95-116, 119-141

Feb.6

Principles of Genetics; Populations; Isolates;
Natural Selection & Random Change in Small Groups
M, ch. 2; M & M, pp. 45-64, 241-263

Feb. 13

Dominant Inheritance in Humans; Recessive Inheritance in Humans; Imprinting
M, ch. 3; M & M, pp. 67-90, 339-362, 191-215

Feb. 20

PTC tasting lab (in class); Aneuploidy;
Sex-Linked & Sex-Limited Inheritance in Humans; Chromosomal Abnormalities: Development
M & M, pp. 267-283, 285-304, 307-334

Feb.21

Balanced Polymorphism in Humans; Human Behavioral Genetics
M, ch. 7; M & M, pp. 167-189, 217-238

March 6

Nutrition & Populations; Disease & Evolution
A, ch. 5; M, ch. 8; D, ch. 11
Short paper due !

Anthro.567 syllabus p.3

March 13

EXAM I-during 1 st half of class session {Jan. 23-March 6)

Variation in Human Size & Shape

M, ch.5

WEEK OF MARCH 20th, NO CLASS--SPRING RECESS

March 27

Variation in Human Pigmentation (Hair, Skin, Eyes); Dermatoglyphics;

Craniofacial & Dental Variation; Variation in Human Biochemistry (Protein Polymorphisms) A, ch. 5;

M, ch. 4

The Dahlberg/Turner reference dental [laques will be set out in Bio 206 to illustrate dental variability in modern human populations

April 3

Variation in Human Blood Groups; the HLA System; Heat Adaptation as an Explanation for Variation;

Homo erectus

A, ch. 3; M & M, pp. 389-412

April 10

Cold Adaptation as an Explanation for Variation; the Neanderthals; Altitude Adaptation as an Explanation for Variation

A, chaps 1, 2, & 4

Annotated bibliography due!

April 17

The Problems of Classifying Humankind; Population Differentiation & Population History; How Far Back Can Modern Variation be Traced? (The Origin of Races); The Fate of the Neanderthals; The Emergence of Anatomically Modern Humans: Where, When, and Why?

M, ch. 1; D, pp. 35-52

Anthro. 567 syllabus p.4

April 24

Human Population Differentiation in Eurasia; Human Population Differentiation in Sub-Saharan Africa
M, ch.6; D, pp. 85-92, 322-333, 376-401

May 1

Amerinds, Eskaleuts, & the Peopling of the Americas; Australoids & the Peopling of the Pacific; Global
Colonization
D, pp. 354-375, 53-66, 295-321, 334-353
Dental Lab paper due!

EXAM II

(March 13-May 1)

Thursday, May 9th, 8-11 A.M.

Anthropology 567 syllabus 5

Human Variation

Anthropology 567 (16:070:567:01)

Spring, 2002 S. Cachet

Instructions for the Short Paper

The 2 attached pages are hardcopies of the Home Page of the OMIM database. OMIM is the acronym for Online Mendelian inheritance in Man, a database created and maintained by Dr. Victor McKusick and his colleagues at Johns Hopkins University. The database is continually updated. It originally appeared in print. Now, however, it is developed for the World Wide Web by the National Center for Biotechnology Information (NCBI). The OMIM URL appears on the attached pages.

Using the OMIM database, write a short paper (about 5 typewritten pages) on a human genetic trait or disorder. The database may be searched using a single subject or combination of subjects. The subject may be specific (e.g., Huntington's Disease, autism) or general (e.g., obesity, intelligence). Links to published articles cited in the Medline database appear with little light bulb icons, a scheme created so that physicians need not waste their time seeking out the original scholarly publications. Write the paper from an anthropological viewpoint, giving a broad, evolutionary perspective on the trait or condition, rather than a pragmatic, descriptive, or medical perspective.

The paper should be about 5-8 typewritten pages in length, and is due on March 6th,

OMIM Home Page -Online Mendelian Inheritance in Man

<http://www.ncbi.nlm.nih.gov/Omim/>

o MIMTM Online Mendelian Inheritance in Man

Home Page

Welcome to OMIM(TM), Online Mendelian Inheritance in Man. This database is a catalog of human genes and genetic disorders authored and edited by Dr. Victor A. McKusick and his colleagues at Johns Hopkins and elsewhere, and developed for the World Wide Web by ~, the National Center for Biotechnology Information. The database contains textual information, pictures, and reference information. It also contains copious links to NCBI's [Entrez](#) database of MEDLINE articles and sequence information.

-: The OMIM Morbid Map, a catalog of genetic diseases and their cytogenetic map locations arranged alphabetically by disease, is now available.

Browsing OMIM

[.Search the OMIM Database](#)

[.Search the OMIM Gene MaQ](#) [.Search the OMIM Morbid MaQ](#) [.The OMIM numbering system](#) [.View the OMIM Update Log](#) [.OMIM](#)

[Statistics](#)

[.Citing OMIM in the literature](#)

[.How to create WWW links to OMIM](#) [.The OMIM Gene List](#)

OMIM Allied Resources

[.Entrez: the NCBI MEDLINE and GenBank retrieval system](#) [.Human Gene Nomenclature Home Page](#)

[.The Davis Human/Mouse Homology Map](#)

[.Online Mendelian Inheritance in Animals \(OMIA\) .The Alliance of Genetic SuQQort GrouQs](#)

[.The Cardiff Human Gene Mutation Database \(HGMD\)](#)

[.The Jackson Laboratory: Courses, mouse resources, mouse databases .FlyBase: A Database of the DrosoQhila Genome](#)

o [FlyBase re-design surve-](#)

of2

12/7/20014:56 PM

OMIM Home Page -Online Mendelian Inheritance in Man

<http://www.ncbi.nlm.nih.gov/Omim/>

.RetNet: Genes causing Retinal Diseases

.MitoMap: the Emory UniversitY mitochondrial genome database .HUM-MOLGEN: Courses, resources, databases, etc.

o There is also an [American mirror site](#). [.Locus-sRecific mutation databases](#)

A vailable for FTP

.The com12lete text ofOMIM. com12ressed (about 23 megabytes) .The OMIM Gene Man (about 625 kilobytes)

.The OMIM Gene Map key (about 6 kilobytes) .The OMIM Morbid Map (about 115 kilobytes)

Note: OMIM is intended for use primarily by physicians and other professionals concerned with genetic disorders, by genetics researchers, and by advanced students in science and medicine.

OMIM is a trademark of the Johns Hopkins University.

For questions about the OMIM database in general, Comments and questions? Send mail to the [NCBI HelQ Desk](#).

~

Credits: Brandon Brylawski ,.

12/7/20014:56 PM

2of2