

ANTHROPOLOGY 4S03: The Anthropology of Infectious Disease January, 2017

Schedule: Wednesday 2:00 P.M. – 5:00 P.M.

Room Number: UH 112

Instructor: Matthew Emery, PhD Candidate

Email: emerymv@mcmaster.ca

Office: CNH 412 (ancient DNA office)

Office hours: TBA

Description

This course is designed to engage students with current debates in antibiotic resistance and microbial evolution from an ecological and anthropological perspective. You will conduct in-depth and intensive interviews with scholars and clinicians involved in microbial infectious disease research. The goal of this course is to investigate the synergism between infectious disease and bacterial resistance, with emphasis on bacterial infections, its biological processes and subsequent social ramifications in a format suitable for public consumption. Our ultimate goal is to enhance the public understanding of science and health to create public awareness about the issues associated with infectious disease research. This course follows a grading based on 'milestones', and grades will be based on completion of each milestone as the course progresses to the end of term.

Course Goals and Objectives

By the end of this course students will be able to:

- Design and develop interview questions based on extensive research
- Conduct professional interviews with scholars in the field of infectious disease research
- Develop practical skills in media production with the ability to convey knowledge through alternative mediums, such as social media and video journalism. To this end, participants of the study will engage both the academic and broader public sphere.

Filming and Interviews

You and 4 or 5 of your peers will create a group project resulting in a short high-quality 10-minute film segment. You will develop comprehensive interview questions mined from historical, archival and scientific information from books, peer-reviewed articles, edited chapters, documentary film, and editorials. You will then conduct in-depth, comprehensive interviews with professional clinicians and academics in the fields of molecular biology, health sciences, evolutionary genetics, medical anthropology, and sociology about the history and future development of antibiotics and antibiotic resistance. All interviews will be video recorded for the purposes of making a documentary film. This documentary forms the foundation of this senior level anthropology course, in which you will engage in the ethics of media production, film

editing, and conducting comprehensive interviews with the final intent of knowledge dissemination to the general public. This research has been approved by MREB (McMaster's Research Ethics Board). Once produced, the film will be amalgamated into one contiguous 60-minute film and distributed to select major broadcasting corporations (e.g. CBC, Global TV, The National Film Board of Canada) for airing.

Our investigative research into the history and future development of antibiotics and antibiotic resistance will be based on previously published research (including single author books, edited books, and peer-reviewed publications), archival documentation, newspaper editorials, former documentaries on the subject matter, and interactive interviews with scholars and clinicians dedicated to the fields of the social, natural, and health sciences. Their opinions and perspectives on the subject will be included in the documentary to complement established research in the field.

NOTICE

This course requires a **SIGNIFICANT** amount time and energy from you. You **WILL** be expected to go above and beyond what is normally required for a half term course to complete the task of editing and producing a documentary film worthy of public viewing. If you are not willing to dedicate more than what is normally required, then please choose an alternative course that is better suited to your level of time commitment(s). The inability or unwillingness to participate or contribute on a weekly basis will be reflected in your final term grade, which is heavily based on your ability to effectively plan, communicate, and execute coordinated tasks with other members of your group.

Class Structure and Debate

Each week the first half of the class will be dedicated to discussing assigned readings relating to the identification, treatment, diagnosis, and future research of antibiotic research. Students will be expected to read and understand a broad range of material derived from both the sciences and social sciences literature. Film schedules, planning, editing, drafting questions for interviews, and guest speakers will take place during the second half of the class every week.

Correspondence - I will check my email regularly throughout the week, so you can expect a response within approximately **48 hours**. Please put **4S03 in the subject line** of your email and **include your name and student number** at the end of all correspondence.

Course Schedule

Week 1 - January 4th

- Part 1: Introduction and course overview**
Part 2: Group formation and ethics forms

Readings:

Didelot, X., Walker, A. S., Peto, T. E., Crook, D. W., & Wilson, D. J. (2016). Within-host evolution of bacterial pathogens. *Nature Reviews Microbiology*, *14*(3), 150-162.

Chang, H. H., Cohen, T., Grad, Y. H., Hanage, W. P., O'Brien, T. F., & Lipsitch, M. (2015). Origin and proliferation of multiple-drug resistance in bacterial pathogens. *Microbiology and Molecular Biology Reviews*, *79*(1), 101-116.

Ghoul, M., & Mitri, S. (2016). The Ecology and Evolution of Microbial Competition. *Trends in microbiology*, *24*(10), 833-845.

Week 2 – January 11th

- Part 1: A Brief Introduction to Microbial Reproduction and Evolution**
Part 2: Guest lecture by Dr. Karen Szala-Menoek (TBD): Ethics of Documentary Film Making

Readings:

Schuenemann, V. J., Bos, K., DeWitte, S., Schmedes, S., Jamieson, J., Mittnik, A., ... & White, W. (2011). Targeted enrichment of ancient pathogens yielding the pPCP1 plasmid of *Yersinia pestis* from victims of the Black Death. *Proceedings of the National Academy of Sciences*, *108*(38), E746-E752.

Wagner, D. M., Klunk, J., Harbeck, M., Devault, A., Waglechner, N., Sahl, J. W., ... & Poinar, D. (2014). *Yersinia pestis* and the Plague of Justinian 541–543 AD: a genomic analysis. *The Lancet Infectious Diseases*, *14*(4), 319-326.

Sparacello, V. S., Roberts, C. A., Canci, A., Moggi-Cecchi, J., & Marchi, D. (2016). Insights on the paleoepidemiology of ancient tuberculosis from the structural analysis of postcranial remains from the Ligurian Neolithic (northwestern Italy). *International Journal of Paleopathology*. In Press.

Week 3 – January 18th

- Part 1: The Identification of Infectious Agents in Archaeological Skeletons**
Part 2: MILESTONE 1: Participant selection and e-mail contact (10%)

Readings:

Didelot, X., Walker, A. S., Peto, T. E., Crook, D. W., & Wilson, D. J. (2016). Within-host evolution of bacterial pathogens. *Nature Reviews Microbiology*, *14*(3), 150-162.

Chang, H. H., Cohen, T., Grad, Y. H., Hanage, W. P., O'Brien, T. F., & Lipsitch, M. (2015). Origin and proliferation of multiple-drug resistance in bacterial pathogens. *Microbiology and Molecular Biology Reviews*, *79*(1), 101-116.

Ghoul, M., & Mitri, S. (2016). The Ecology and Evolution of Microbial Competition. *Trends in microbiology*, *24*(10), 833-845.

Week 4 – January 25th

- Part 1: Revolutionary Medicine: A Short History of the Evolution of Antibiotics**
Part 2: Guest lecture by Nick Marquis: Film design and editing, accessing and renting film equipment

Readings:

Finley, R. L., Collignon, P., Larsson, D. J., McEwen, S. A., Li, X. Z., Gaze, W. H., ... & Topp, E. (2013). The scourge of antibiotic resistance: the important role of the environment. *Clinical Infectious Diseases*, cit355.

Price, L. B., Koch, B. J., & Hungate, B. A. (2015). Ominous projections for global antibiotic use in food-animal production. *Proceedings of the National Academy of Sciences*, *112*(18), 5554-5555.

Chantziaras, I., Boyen, F., Callens, B., & Dewulf, J. (2014). Correlation between veterinary antimicrobial use and antimicrobial resistance in food-producing animals: a report on seven countries. *Journal of Antimicrobial Chemotherapy*, *69*(3), 827-834.

Capita, R., & Alonso-Calleja, C. (2013). Antibiotic-resistant bacteria: a challenge for the food industry. *Critical reviews in food science and nutrition*, *53*(1), 11-48.

Week 5 – February 1st

- Part 1: Antibiotic Resistance: An Ecological Model**
Part 2: Guest lecture by Dr. Colin Labadie: Putting music to film

Reading:

Benezraa, A., DeStefanoa, J., & Gordona, J. I. (2012). The Anthropology of microbes. *Proceedings of the National Academy of Sciences*.

Wright, G. D., & Poinar, H. (2012). Antibiotic resistance is ancient: implications for drug discovery. *Trends in microbiology*, 20(4), 157-159.

Orzech K.M., and Nichter M. 2008. From Resilience to Resistance: Political Ecological Lessons from Antibiotic and Pesticide Resistance. *Annual Review of Anthropology*. Vol. 37: 267-282 (Volume publication date October 2008).

Week 6 – February 8th

- Part 1: Antibiotic Resistance: An Anthropological Perspective**
Part 2: MILESTONE 2: Participant contact and interview date established (10%)

Readings:

Farmer, P. (1996). Social inequalities and emerging infectious diseases. *Emerging infectious diseases*, 2(4), 259.

Richardson, E. T., Morrow, C. D., Ho, T., Fürst, N., Cohelia, R., Tram, K. H., ... & Wood, R. (2016). Forced removals embodied as tuberculosis. *Social Science & Medicine*, 161, 13-18.

Heesterbeek, H., Anderson, R. M., Andreasen, V., Bansal, S., De Angelis, D., Dye, C., ... & Hollingsworth, T. D. (2015). Modeling infectious disease dynamics in the complex landscape of global health. *Science*, 347(6227), aaa4339.

Week 7 – February 15th

- Part 1: The Social Aspects of Infectious Disease in Society**
Part 2: Troubleshoot interview process and draft questions

Readings: *No readings*

Week 8 – February 22nd

READING WEEK! USE THIS TIME TO CONDUCT INTERVIEWS, DRAFT QUESTIONS, CONTACT PARTICIPANTS, OR EDIT!

Readings:

Laxminarayan, R., Duse, A., Wattal, C., Zaidi, A. K., Wertheim, H. F., Sumpradit, N., ... & Greko, C. (2013). Antibiotic resistance—the need for global solutions. *The Lancet infectious diseases*, 13(12), 1057-1098.

Spellberg, B., Bartlett, J. G., & Gilbert, D. N. (2013). The future of antibiotics and resistance. *New England Journal of Medicine*, 368(4), 299-302.

Sanders, W. (2010). Documentary filmmaking and ethics: Concepts, responsibilities, and the need for empirical research. *Mass Communication and Society*, 13(5), 528-553.

Week 9 – March 1st

Part 1: The Future of Antibiotic Treatment/Documentary Film Perspectives and Narratives

Part 2: MILESTONE 3: Preliminary interview footage due (10%)

Readings: The Technique of Film and Video Editing (PDF available on Avenue)

Editing Techniques for Film (PDF)

Week 10 – March 8th

Part 1: How to Edit Visual Footage for a Documentary Film

Part 2: Troubleshoot video editing

Readings: *No readings*

Week 11 – March 15th

Part 1: Video editing

Part 2: Video editing

***Week 12 – March 22nd**

MILESTONE 4: FINAL SEGMENT DUE

Viewing and presentation of short 10-minute film segments.

Course Evaluation

Participation – **20%**

Team Contribution and Milestones – **30%**

Weekly Questions – **10%**

Final Film Segment – **30%**

IMPORTANT INFORMATION

THE UNIVERSITY REQUIRES INSTRUCTORS TO INCLUDE THE FOLLOWING ON COURSE OUTLINES.

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.

MSAF (McMaster Student Absence Form)

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.

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, www.mcmaster.ca/senate/academic/ac_integrity.htm

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. Copying or using unauthorized aids in tests and examinations.
3. In this course we will be using a software package designed to reveal plagiarism. Students will be required to submit their work electronically and in hard copy so that it can be checked for academic dishonesty.

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.

Email Forwarding in MUGSI: <http://www.mcmaster.ca/uts/support/email/emailforward.html>

*Forwarding will take effect 24-hours after students complete the process at the above link.

SPECIAL ACCOMMODATIONS Students with special learning needs are asked to contact the instructor no later than the second week of classes. You must have written confirmation from Student Accessibility Services (SAS), or use the online SAS submission system. They also provide or assist students with their academic and disability-related needs, including: Learning Strategies, Assistive Technologies, Test & Exam Administration, Note-Taking Programs, Classroom Accommodations. Tel: 905-525-9140, x. 28652. Email: sas@mcmaster.ca Website: <http://sas.mcmaster.ca>