

Global Biosecurity Course Syllabus and Schedule

Course rubric: MCB 436 (1 credit hour, CRN#60483)

Course Director: Brenda A. Wilson, Ph.D., Prof. of Microbiology, B209 Chemical & Life Sciences Laboratory, email: wilson7@illinois.edu, URL: <http://mcb.illinois.edu/faculty/profile/wilson7>

Office hours: Thursdays 5:15-6:30 pm or by appointment in B209 Chemical & Life Sciences Laboratory

Course TA: Mr. Eliot Joya Sandoval (eliotsj2@illinois.edu) will be assisting me with grading and course logistics and will be available for office hours by appointment in the MCB Learning Center in 101 Burrill Hall.

Class Location: 1024 Chemistry Annex

Class Time: Mondays 4:00-4:50 pm

Course Description:

Seminar-based course designed to provide students with broad coverage of key areas of scientific, legal, social, ethical, and political aspects of biosecurity, emphasizing current problems and research in the areas of biodefense, emerging infectious diseases, synthetic biology, global health, food security and other topics. Through a combination of related reading assignments, quizzes and activities, individual and team-based assignments, and weekly special topics seminars, students will learn to integrate knowledge of modern biomedical research, advances in biotechnology, and natural and manmade biological threats and how they relate to global biosecurity. Students will gain the skills to seek out and analyze information related to biosecurity and then develop and communicate public policies, engagement and strategies for enhancing global biosecurity.

Course Schedule:

Aug 26 – Brenda Wilson – first day of class, course logistics and "Introduction to Global Biosecurity"

Sept 2 – Labor Day – no class

Sept 9 – Brenda Wilson – "Global Biosecurity and Science Literacy"

Sept 16 – Brenda Wilson – "Global Biosecurity in a Complex, Dynamic World: Emerging & Escalating Issues"

Sept 23 – Steven Blanke – "The Life Factory: Promise, Perils, and Policing of Synthetic Biology"

Sept 30 – Chris Brooke – "Flu: Disease, Evolution, Vaccines and Policies"

Oct 7 – Gay Miller – "Keeping the United States Biosecure from Foreign Animal Diseases: The Example of Foot and Mouth Disease (FMD)"

Oct 14 – Will Sander – "Surveillance and the Risk to Biosecurity"

Oct 21 – Justine Kaplan – "Emergency Response During Biothreat Crisis"

Oct 28 – Margarita Teran-Garcia – "Global Biosecurity and Social Determinants of Health and Health Equity"

Nov 4 – Rodney Hopson – "Language, Peace, and Global Security in the 21st Century"

Nov 11 – Craig Gundersen – "Economics of Global Food Security"

Nov 18 – Brenda Wilson – "Genetically Modified Organisms (GMOs) – Impact on Food Security"

Nov 25 – Thanksgiving break – no class

Dec 2 – James Schlauch – "Food Safety and Biosecurity"

Dec 9 – Brenda Wilson – "Food Safety: the Case for Food Irradiation – Science Meets Law"

Dec 17 – FINAL – All Projects Due by 5 pm

Grading

400 points total – 14 class periods

20 pts – Introductory Assignment: upload of mugshot (3 pts), personal profile summary (15 pts), and select a team (2 pts)

NOTE: *There will be an additional penalty score of up to –10 pts given for lack of participation or for poor effort in participation. This penalty score will be applied against your total overall course score (i.e., overall, you could lose up to 30 pts from your total course score by not doing or taking this activity seriously).*

60 pts – 5 pts for each in-class set of iClicker questions and/or activities (top 12 scores are used)

110 pts – 10 pts for each individual post-lecture quiz or post-lecture assignment (top 11 scores are used)

10 pts – 2-member team assignment #1 – distinguishing types of publications

10 pts – 2-member team assignment #2 – Ebola tracking

10 pts – 2-member team assignment #3 – news article #1

10 pts – 2-member team assignment #4 – news article #2

70 pts – 4-member team assignment #5 – Travel advisory

- 15 pts – Part A – 2-page travel advisory executive summary – grade assessment from TA and instructor
- 15 pts – Part B – team-designed travel advisory poster – grade assessment from TA and instructor
- 40 pts – Part C – peer-evaluation of executive summary and poster
 - 20 pts for score based on evaluations from other students
 - 20 pts for evaluation of other teams' travel advisories (each student must evaluate other team's advisories)

100 pts – 4-member team assignment #6

- 20 pts – Part A – 2-page executive summary of justification for choice of biosecurity topic (What's the pitch?) – grade assessment from TA and instructor
- 20 pts – Part B – team-designed public service announcement media project – grade assessment from TA and instructor
- 60 pts – Part C – peer-evaluation of executive summary and public service announcement
 - 30 pts for score based on evaluations from other students
 - 30 pts for evaluation of other teams' public service announcement

Grade Cutoffs: (out of 400 total points)

A	–	380
A-	–	360
B+	–	340
B	–	320
B-	–	300
C+	–	280
C	–	260
C-	–	240
D+	–	220
D	–	200
D-	–	180
F	–	<180

Course Learning Objectives:

After taking this course, students will be able to:

1. Understand the components of scientific literacy and the process of scientific inquiry.
2. Communicate complex scientific information.
3. Apply simple predictive models to biology-related phenomena in the context of biosecurity.
4. Understand how paradigms of biosecurity relate to society and policy and their own lives.
5. Critically evaluate science-related news and information for their credibility and validity.
6. Apply critical thinking and reasoning skills to solve problems related to biosecurity.
7. Possess a general working knowledge of fundamental biological concepts relevant to biosecurity.
8. Recognize that biosecurity is a dynamic, collaborative, and inter-disciplinary field.

Overview of Course Assignments:

Each class will meet for ~1 hour, once a week on Mondays at 4pm. Attendance is mandatory.

One or a few key papers that are relevant to the material covered in the corresponding lecture will be assigned (citations will be posted on the course website). Downloadable pdf copies of the lecture notes will be available for each of the lectures on the course website (*Note: these materials are for your educational benefit and are not for sale, transfer or public posting of any kind*). All students in the class are expected to have read those papers before coming to class. Each student should come to class prepared to ask questions, discuss the topics covered by each speaker, and respond to iClicker questions in class.

There will be a post-lecture online quiz (individual) or assignment (individual or 2-membered team) associated with each lecture. All quizzes, assignments, and course information are online in the Moodle site. Throughout the semester there will also be homework assignments, both individual (mugshot, personal statement, team sign-up, and assignment #1), two-membered team assignments (#2 and #3) and two 4-membered team-based assignment (#4 and #5). All assignments should be submitted via the course Moodle site. *Note:* A post-lecture assignment is not the same thing as a numbered assignment.

For Assignments #2 and #3, you will be grouped into teams of 2. You may select your team partner, with whom you will work for these assignments. Once you are paired with a partner, you will remain with that person for the remainder of the course. If a team partner drops the course, then you may partner with another student who is not partnered (this is indicated on the website page, so you can find another person without a partner). If you need help with finding a partner, please let the TA or me know, and we will assign you a partner.

For Assignment #4 and #5, you will be grouped into teams of 4, where the 2-membered teams formed for Assignments #2-3 will now be combined into 4-membered teams. This team grouping will be computer generated automatically.