

## Biosecurity and Microbial Forensics From Prevention to Response

### Course Curriculum

Lecture every Friday, 10:00-11:20; Seminar every Friday 12:30-1:20

This course will be very interactive with lectures and presentations by experts from Biosecurity and Law Enforcement agencies across the United States. Enrolled students are expected to attend all lectures, seminars and field trips for a complete grade and to receive a certificate of Biosecurity. Any absence must be justified with the Professor in advance. Students will be provided with relevant reading materials each week and time to review what they have read in the following lecture period. Grades will be comprised of: attendance and participation – 10 points; 2 mid-term exams – 25 points each; presentation and discussion – 10 points; and the Final Exam – 30 points.

August 20

Lecture: Introduction to Biosecurity

Dr K.F. Cardwell

Seminar: Tactical sciences in Biosecurity of Animal and Plant Systems

Dr Keith Bailey

August 27

Lecture: Introduction to the Economics of Agricultural Biosecurity

Dr David Schimmelpfennig  
Economist, USDA APHIS

Seminar: Economics of Plant Biosecurity

Dr Janie Chermak  
Economist, University of Arizona

September 3

Lecture: Evolution and Biosecurity

Dr Hon Ip  
US Geological Service

Seminar: Genetic processes facilitating pathogen emergence

Dr Nik Grunwald  
Oregon State University

September 10

Lecture: Human Mediated Movement of Agricultural Pathogens – Risk Analysis

Dr Heike Meissner  
USDA APHIS PPQ  
Dr Gericke Cooke  
USDA APHIS VS

Seminar: Risk Analysis Case Studies

September 17

Lecture: Management of Biosecurity Risks at the Border

Dr. K.F. Cardwell

Exam: Tactics in Biosecurity Prevention – up to the border

Seminar: Case Study in Tactical Management at the Border

Dr. Wang  
Engineering, OSU

September 24

Lecture: Tactics for Post Border Detection

Dr. Jerry Malayer  
CVHS, OSU

Seminar: Surveillance systems for Introduced Pathogens and Pests

Dr. John Bowers  
USDA, APHIS

October 1

Lecture: Incident Command for Emergency Response

Dr Rosslyn Biggs

Seminar: Incident response – Communications in an emergency

CVHS, OSU  
Dr. Quisto  
Ag Communications, OSU

October 8

Lecture: Diagnostics for Biosecurity

Dr F. Ochoa-Corona  
IBMF, OSU

Seminar: Animal Disease Diagnostics for Biosecurity – OADDL Lab Tour

Dr Akhilesh Ramachandran  
OADDL, OSU

October 15 – Fall Break

October 22

Lecture: Post Entry Surveillance Systems

Dr Gericke Cooke

Seminar:

TBA

October 29:

Exam: Tactics in Biosecurity Post-Border Entry

Seminar: Response to Agricultural Emergencies

Drs Russ Bullock & Barry Meade  
USDA APHIS, PPQ and VS, respectively

November 5

Field Trip (leaving at 8 am): Biosecurity at the Industrial Enterprise Scale - Hanor Inc (ENID) and/or Lopez foods (OKC)

November 12

Lecture: Tactical Applications of Microbial Forensics in Biosecurity

Dr. Jacque Fletcher  
OSU Emeritus

Seminar: Agricultural Crime Scene Investigations

Dr. Stephen Goldsmith  
Federal Bureau of Investigation

November 19

Lecture: Student Presentations – Each student 10 minute presentation on a case study assigned to them, plus 5 minutes of leading a discussion

Dr K.F. Cardwell

Seminar: An eye to the Future

Dr. Keith Bailey

November 26 – Thanksgiving Break

December 3 – Study Hall (dead week)

December 10 – Final Exam 11:30 am