The University of Kansas
College of Liberal Arts & Sciences
COMMITTEE ON UNDERGRADUATE STUDIES & ADVISING
AGENDA

November 11, 2014, 11:15AM
STRONG HALL – ROOM 210

I. Welcome

II. Approval of CUSA Minutes from October 28, 2014

III. Dean’s Office Update

IV. SAS Office Update

V. Subcommittee Chair Reports
   a. Curricular Changes/Degree Requirements
      1. Curricular Changes for Approval:
         NEW COURSES: CLSX 210, CLSX 220, GEOL 316, JWSH 326, PHSX 202, SLAV 110
         CHANGES: AAAS 510, AMS 534, BIOL 545, EVRN 460, GERM 444/353, HIST 578/471,
                    LA&S 490, REL 326, SOC 534
         DELETIONS: BIOL 427
      2. Degree Requirements for Approval:
         a. Changes to Existing Major to BS Geography (PHSX 202 related)
         b. Changes to Existing to BS Atmospheric Science AND Atmospheric Science Minor
            (PHSX 202 related)
         c. Changes to Existing Major to BA/BGS Classical Antiquity AND BA/BGS Classical
            Languages
      3. KU Core Proposals
         a. SLAV 495 – GOAL 6
      4. Old Business
         a. Proposal to consider BIOL155 as a lab/field experience course for the BA Degree
            Specific Requirements – Attachment 1
         b. Proposal to consider ANTH 462 as a lab/field experience course for the BA Degree
            Specific Requirements – Attachment 2
      5. Other - Informational Item only
         a. 4 + 1 proposal for a BS/Professional Science Masters in Environmental Studies/Environmental
            Assessment.
         b. Academic Policies and Awards

I. Adjournment
The committee met on Tuesday, October 28, 2014, at 11:15 a.m. in Room 210 Strong Hall. The following were present: Atchley, Bayer, Bradley, Brumfield, Garibotto, Hilding, Kelly, Kuhn, Ledom, Morris, Persley, Rockey, Rufledt, Spreckelmeyer, Stock, Timm, Weis

**Chair’s Welcome:** Professor Atchley called the meeting to order. Ms. Ledom introduced Dr. Susan Rufledt, the new director of Student Academic Services. Professor Atchley then introduced Alexander Kuhn, our new student member of CUSA.

**Approval of CUSA Minutes:** A motion was made to approve the September 23, 2014 meeting minutes of the Committee on Undergraduate Studies & Advising. The motion was seconded and passed.

**Dean’s Office Update:** No report.

**SAS Office Update:** Dr. Rufledt reported that the catalog updates will be requested in mid-November to be returned by mid-December.

Dr. Rufledt also informed the committee that the fall graduation ceremony will be held on Sunday, December 14, 2014 at 2:00 p.m. in the Lied Center.

**Subcommittee Assignments:**

a. Curricular Changes/Degree Requirements/ KU Core Proposals

1. **Curricular Changes Approved**
   Ms. Ledom presented the Curricular Changes nominations. A motion was made to approve the Curricular Changes. The motion was seconded and passed unanimously.

   **NEW COURSES:** BIOL155, CEAS 610, ENGL 199, HIST 220, HIST 511/551/HWC 240/ISP 551,
   
   PHIL 150, PLSH 105, PLSH 109, PLSH 205, PLSH 209, RUSS 105, RUSS 109, RUSS 205, RUSS 209, SLAV 495, WGSS 430
   
   **CHANGES:** ABSC 304, ABSC 308, ABSC 342, ABSC 410, ABSC 509, BIOL 644, GEOL 304, GEOL 331, GERM 100, GERM 101, HWC 150/250, PCS 120/220, MATH 570/597, RUSS 104, RUSS 108, RUSS 204, RUSS 208, SPAN 340, WGSS 530
   
   **DELETIONS:** ABSC 140, GEOL 571, RUSS 212, RUSS 216

2. **Degree Requirements for Approval:**
   Professor Hilding presented the Degree Requirements nominations. A motion was made to approve the Degree Requirements. The motion was seconded and passed unanimously.

   d. Changes to Existing Major to BA and BFA Dance
   e. Changes to Existing Major to BA Microbiology
   f. Changes to Existing Major to BFA Theatre Design
   g. Changes to Existing Major to BS Molecular Biosciences
   h. Changes to Existing Minor to PCS
   i. Changes to Existing Major to Humanities
   j. Changes to Existing Major Admissions BS Molecular Biosciences
   k. Changes to Existing Major and Minor to Religious Studies
I. Changes to Existing Major and Minor to Slavic Languages  

m. Changes to Existing Major to Women’s Studies

3. KU Core Proposals
   Professor Hilding presented the KU Core Proposals nominations. A motion was made to approve KU Core Proposals for ENGL 581, HA 151, HA 161, HA 550, and PUAD 601. The motion was made, seconded and passed unanimously.

a. ENGL 306 – Goal 4.2 - After various motions and lengthy discussion, a motion was made to send the proposal on to UCCC and send a request to the department that they update their catalog course description and also describe how it addresses other cultural material. The motion was seconded and passed with a vote of 10 to approve, 1 – opposed, 1-abstention.

h. PHIL 150 – Goal 2.2 – Approved, 1 abstention.

b. ENGL 306 – GOAL 4.2*  
c. ENGL 581 – GOAL 6  
d. FMS 307 – GOAL 6*  
e. HA 151 – GOAL 3H  
f. HA 161 - GOAL 3H  
g. HA 550 – GOAL 6  
h. HIST 325, JWSH 315, SPAN 302 – GOAL 5.2  
i. PHIL 150 – GOAL 2.2  
j. PUAD 601 – GOAL 4.1

c. FMS 307-Goal 6 - A friendly amendment was made to table and send back to the department.

g. HIST 325, JWSH 315, SPAN 302 – Goal 5.2. A motion was made to table proposal and send back to department for clarification as to which goal they were requesting. The motion was seconded and passed unanimously.

4. New Business:  
i. Ms. Ledom presented the proposal to allow Goal 4.2 courses to fulfill the World Culture requirement in the LA&S-BGS degree. The motion was seconded and passed unanimously.

ii. Ms. Ledom presented a proposal to approve course title approval for Haskell courses taken by KU students. The motion was seconded and passed unanimously.

Tabled: Item C: Proposal to consider BIOL155 as a lab/field experience course for the BA Degree Specific Requirements and item D: Proposal to consider ANTH 462 as a lab/field experience course for the BA Degree Specific Requirements were tabled until the next meeting.

Adjournment 12:47 pm
a. Curricular Changes/Degree Requirements

1. Curricular Changes for Approval/Motion to File

AFRICAN & AFRICAN AMERICAN STUDIES

CHANGE: TITLE COURSE IS CURRENTLY CROSS-LISTED
AAAS 510 COMPARATIVE ETHNIC AND RACIAL RELATIONS 3 NW AE42 S
(OLD) An examination of constructions of race and ethnicity around the world. Emphasis is on the social, political, historical, cultural and economic factors that lead to the creation of ethnic and racial identities, ethnic conflict and accommodation, ethnic movements, and ethnic political organization. Racial and ethnic relations in the U.S. are compared with other countries. Major focus is placed on ethnicity in Africa, Asia, Latin America, the Caribbean and/or the Middle East. (Same as AMS 534 and SOC 534) LEC

AAAS 510 GLOBAL ETHNIC AND RACIAL RELATIONS 3 NW AE42 S
(NEW) An examination of constructions of race and ethnicity around the world. Emphasis is on the social, political, historical, cultural and economic factors that lead to the creation of ethnic and racial identities, ethnic conflict and accommodation, ethnic movements, and ethnic political organization. Racial and ethnic relations in the U.S. are compared with other countries. Major focus is placed on ethnicity in Africa, Asia, Latin America, the Caribbean and/or the Middle East. (Same as AMS 534 and SOC 534) LEC

AMERICAN STUDIES

CHANGE: TITLE COURSE IS CURRENTLY CROSS-LISTED
AMS 534 COMPARATIVE RACIAL AND ETHNIC RELATIONS 3 AE42 S NW
An examination of constructions of race and ethnicity around the world. Emphasis is on the social, political, historical, cultural and economic factors that lead to the creation of ethnic and racial identities, ethnic conflict and accommodation, ethnic movements, and ethnic political organization. Racial and ethnic relations in the U.S. are compared with other countries. Major focus is placed on ethnicity in Africa, Asia, Latin America, the Caribbean and/or the Middle East. (Same as AAAS 510 and SOC 534)

BIOLOGY

CHANGE: DELETE COURSE
BIOL 427 DEVELOPMENTAL BIOLOGY LABORATORY 2 N
Laboratory exercises examine processes of early development in animal model organisms. Students study the normal development of live embryos and prepared slides of sea anemones, sea urchins, frogs and chicks. Study of regeneration and axial patterning through experimental manipulation of invertebrates is also explored. Prerequisite: Concurrent or prior enrollment in BIOL 417. LAB.

CHANGE: COURSE DESCRIPTION CREDIT
BIOL 545 EVOLUTION OF DEVELOPMENT 3 N
(OLD) An advanced course designed to expose students to evolutionary change in the developmental patterning of plant and animal form. This course integrates multiple biological disciplines including phylogenetics, comparative morphology, molecular evolution and developmental genetics to explore biodiversity at a mechanistic level. Topics range from issues surrounding homology assessment to empirical examples of how changes in gene expression or function may have shaped morphological diversity. Prerequisite: BIOL 350 or equivalent. LEC

BIOL 545 EVOLUTION OF DEVELOPMENT 5 N
(NEW) An advanced course designed to expose students to evolutionary change in the developmental patterning of plant and animal form. This course includes a lecture component and a laboratory component to integrate multiple biological disciplines including comparative morphology, molecular evolution, developmental genetics and experimental development, to explore
biodiversity at a mechanistic level. Lectures are designed to give students background on topics ranging from homology assessment to empirical examples of how changes in gene expression or function may have shaped morphological diversity. The laboratory complements these topics through observations of normal development in a diversity of plant and animal model organisms, and through conducting independent research experiments. Prerequisite: BIOL 350 or equivalent.

LEC/LAB

CLASSICS

CHANGE: NEW COURSE
CLSX 210 GREEK RHETORIC IN THEORY AND PRACTICE 3 H
This course explores the theory and practice of ancient Greek rhetoric, with the aim of developing student’s own rhetorical skills and habits. All readings are in translation; no knowledge of ancient Greek is required. Students study rhetoric in such authors as Homer, Demosthenes, Plato, and Lysias and discuss such topics as the role of public speaking in maintaining Greek democracy, the difference between rhetorical skill as a means and an end, the relationship between rhetorical style and civic identity, and the adaptability of rhetoric to various circumstances and audiences. Students practice delivery with ancient speeches; write and deliver speeches tailored to a variety of situations; and listen to and critique the speeches of their peers and others.

CHANGE: NEW COURSE
CLSX 220 ROMAN ORATORY IN THEORY AND PRACTICE 3 H
This course explores the theory and practice of ancient Roman rhetoric, with the aim of developing student’s own rhetorical skills and habits. All readings are in translation; no knowledge of Latin is required. Students will study rhetoric in such authors as Cicero, Quintilian, Caesar, and Seneca and discuss such topics as the role of rhetorical theory in Roman education; oratory as a hallmark of public service during the Republic, and its transition to a pastime in the Imperial age; the ways the Romans connected oratorical style with humor, the body, and gender identity; and the leeway given to speakers in constructing an argument. Students practice delivery with ancient speeches; write and deliver speeches tailored to a variety of situations; and listen to and critique the speeches of their peers and others.

ENVIRONMENTAL STUDIES

CHANGE: COURSE DESCRIPTION  PREREQUISITE
EVRN 460 FIELD ECOLOGY 3 N
(OLD) Provides practical experience in the characterization of a diversity of ecosystem types; lakes, streams, forests, and prairies. This course is writing intensive, and designed for Environmental Studies majors. Prerequisite: EVRN/GEOG 148/149; EVRN/HIST 103, EVRN/HIST 347 or EVRN/GEOG 150; Senior standing. Restricted to declared Environmental Studies majors. Satisfies: N Natural Science (N)

EVRN 460 FIELD ECOLOGY 3 N
(NEW) An introduction to research methods for environmental science. The course includes fieldwork in diverse ecosystems (lakes, streams, forests, prairies). It emphasizes the development of skills in data analysis and interpretation that are essential to a full understanding of environmental issues. Enrollment limited to environmental studies majors, or by instructor permission. Prerequisites: Junior or Senior standing, completion of the natural sciences requirement of the KU core (GE3N), and either EVRN 320 or EVRN 332.

GEOLOGY

CHANGE: NEW COURSE
GEOL 316 GEOFICHEMISTRY 3 N
The course is intended to be an introduction to all types of geochemistry. It focuses on the chemistry of the natural world and the chemical evolution of the Earth over geological time. The course is composed of three modules: (a) geochemical fundamentals; (b) natural and
anthropogenically perturbed aspects of the Earth's hydrosphere and its interaction with surficial rocks, sediments, soils, the biosphere and the atmosphere and (c) the origin and evolution of Earth (crust-mantle-core) and the solar system through nuclear and high temperature chemical processes. Prerequisites: GEOL 101, CHEM 130 or 190; and eligibility for MATH 115. LEC.

GERMANIC LANGUAGES & LITERATURE

CHANGE: PREREQUISITE NUMBER
GERM 444 GERMAN CONVERSATION 3 H
(OLD) Further development of practical conversational skills for students with intermediate proficiency in German. Discussion of topics from everyday German life and current affairs, based on German newspapers and magazines. May be repeated but counts only once toward the major or minor. Not open to native speakers of German. Prerequisite: GERM 302. LEC.

GERM 353 GERMAN CONVERSATION 3 H
(NEW) Further development of practical conversational skills for students with intermediate proficiency in German. Discussion of topics from everyday German life and current affairs, based on German newspapers and magazines. May be repeated but counts only once toward the major or minor. Not open to native speakers of German. Prerequisite: GERM 202. LEC.

HISTORY

CHANGE: DESCRIPTION, NUMBER
HIST 578 SOCIAL HISTORY OF SOUTH AMERICA 3 H W
(OLD) The course treats the long-term effort of the South American nations to become urban industrial societies through economic development, emergence of modern pressure groups, improvement of human capital, and the fostering of a sense of national purpose and unity expressed in the participation of the whole population in all of the activities and benefits of life in society. LEC.

HIST 471 SOCIAL HISTORY OF SOUTH AMERICA 3 H W
(NEW) The various republics of South America have experienced radical social change since the late 19th century. Compressed industrialization has propelled the accelerated growth of global megacities, mass immigration from Europe and Asia, and the rise of populist and socialist politics that address the needs of the working class. This course follows a thematic approach by examining collective violence, endemic poverty, shifting gender relations, labor conflict, public health, revolutionary movements, and dictatorships.

JEWISH STUDIES

CHANGE: NEW CROSS-LISTED COURSE
JWSH 326 THE TALMUD: ITS ORIGINS, NATURE, AND EVOLUTION 3 H
This course demystifies the Talmud, arguably the most central yet also the most mysterious text of rabbinic Judaism. Students are introduced to the scope, substance, styles, and major figures of the Talmud, and also learn how the text came into being over the course of several centuries. Prerequisite: REL 104, REL 107, or REL 124/125, or permission of the instructor. LEC. (Same as REL 326)

LIBERAL ARTS & SCIENCES

CHANGE: COURSE DESCRIPTION
LA&S 490 INTERNSHIP EXPLORATION 1-5 U
(OLD) This course provides credit for supervised practical experiences in an occupational area of interest. In addition to the work-related activity, students complete reading and writing assignments, participate in an on-line discussion and create a final portfolio of internship accomplishments. Hours of credit recorded (1-5) are based on number of hours at internship site and agreement of instructor. Credit hours will be assigned a letter grade. Prerequisite: Consent of Instructor. LEC.

LA&S 490 INTERNSHIP EXPLORATION 1-5 U
This course provides credit for supervised practical experiences in an occupational area of interest. In addition to the work-related activity, students complete reading and writing assignments, participate in an on-line discussion and create a final portfolio of internship accomplishments. Hours of credit recorded (1-5) are based on number of hours at internship site and agreement of instructor. Credit hours will be assigned a letter grade. Repeatable for up to 5 credit hours, provided the internship experiences are different. Prerequisite: Consent of Instructor. LEC.

**PHYSICS**

**CHANGE: NEW COURSE**

**PHSX 202** TRANSITION TO GENERAL PHYSICS II 1 N
Electricity and magnetism with calculus for students who have had a prior algebra-based course. Prerequisites: PHSX 115 and permission of the department. Corequisite: MATH 122. LEC

**RELIGIOUS STUDIES**

**CHANGE: COURSE DESCRIPTION**

**REL 326** INTRODUCTION TO THE TALMUD AND INTERPRETATION 3 H
A study of the Talmud and the main lines of its reception and interpretation from Late Antiquity through Modernity in Rabbinic literature and the broader context of Western religion and philosophy. Prerequisite: REL 104, REL 107, or REL 124/125, or permission of the instructor. LEC.

**REL 326** THE TALMUD: ITS ORIGINS, NATURE, AND EVOLUTION 3 H
This course demystifies the Talmud, arguably the most central yet also the most mysterious text of rabbinic Judaism. Students are introduced to the scope, substance, styles, and major figures of the Talmud, and also learn how the text came into being over the course of several centuries. Prerequisite: REL 104, REL 107, or REL 124/125, or permission of the instructor. LEC. (Same as JWSH 326)

**SLAVIC LANGUAGES & LITERATURES**

**CHANGE: NEW COURSE**

**SLAV 110** INTRODUCTION TO THE PEOPLES AND CULTURES OF KAZAKHSTAN THROUGH RUSSIAN 1 U
This 8-week course prepares students of all majors with little or no knowledge of Russian to function effectively in the experiential internship program in Almaty, Kazakhstan, with appropriate cultural sensitivity and survival Russian-language skills. The focus is basic grammar and key vocabulary terms of Russian (e.g., reading signs, menus; understanding key conversational phrases). Weekly readings treat the history, business culture, and language politics of Kazakhstan.

**SOCIOLOGY**

**CHANGE: TITLE**

**SOC 534** COMPARATIVE ETHNIC AND RACIAL RELATIONS 3 NW AE42 S
An examination of constructions of race and ethnicity around the world. Emphasis is on the social, political, historical, cultural and economic factors that lead to the creation of ethnic and racial identities, ethnic conflict and accommodation, ethnic movements, and ethnic political organization. Racial and ethnic relations in the U.S. are compared with other countries. Major focus is placed on ethnicity in Africa, Asia, Latin America, the Caribbean and/or the Middle East. (Same as AAAS 510 and AMS 534) LEC

**SOC 534** GLOBAL ETHNIC AND RACIAL RELATIONS 3 NW AE42 S
An examination of constructions of race and ethnicity around the world. Emphasis is on the social, political, historical, cultural and economic factors that lead to the creation of ethnic and racial identities, ethnic conflict and accommodation, ethnic movements, and ethnic political organization. Racial and ethnic relations in the U.S. are compared with other countries. Major
focus is placed on ethnicity in Africa, Asia, Latin America, the Caribbean and/or the Middle East. (Same as AAAS 510 and AMS 534) LEC

2. Degree Requirements for Approval

a. Changes to Existing Major – BS Geography

PROPOSAL

The current requirement for B.S. in Geography (Physical Geography) under Preparation for the major:
PHSX 211 and PHSX 212

will be changed to:
PHSX 211 or PHSX 114 and 201
PHSX 212 or PHSX 115 and 202

JUSTIFICATION

As options, those changes will accommodate the students who may have already taken PHSX114 and PHSX 116. We still recommend students to take PHSX 211 and 212 instead of the alternatives.

Requirements for the B.S. Degree

Geography B.S. General Education Requirements

EXCERPT

Physical Geography Option

Geography Prerequisite or Co-requisite Knowledge (29-31)

Calculus I. Satisfied by one of the following:

- MATH 121 Calculus I (recommended)
- MATH 115 Calculus I

Calculus II. Satisfied by one of the following:

- MATH 122 Calculus II (recommended)
- MATH 116 Calculus II

Physics I. Satisfied by one of the following:

- PHSX 211 Or PHSX 114 and 201
  & PHSX 216 General Physics I
  and General Physics I Laboratory (recommended)

  or PHSX 114 College Physics I

Physics II. Satisfied by one of the following:

- PHSX 212 Or PHSX 115 and 202
  & PHSX 236 General Physics II
  and General Physics II Laboratory
b. Changes to Existing Minor – BS Atmospheric Science AND Atmospheric Science

PROPOSAL
The current requirement for B.S. in Atmospheric Science (all concentrations) under Preparation for the major:

PHSX 211 and 216 and PHSX 212 and 236

will be changed to:

PHSX 211 or PHSX 114 and 201
PHSX 216
PHSX 212 or PHSX 115 and 202
PHSX 236

JUSTIFICATION
As options, those changes will accommodate the students who may have already taken PHSX114 and PHSX 116. We still recommend students to take PHSX 211 and 212 instead of the alternatives.

Requirements for the B.S. Degree in Atmospheric Science

EXCERPT

Atmospheric Science Prerequisite or Co-requisite Knowledge (36-38)

Majors must complete courses as specified in each of the following areas. Majors are advised to take honors courses when eligible. These hours do not contribute to the minimum number of hours required for the major.

Computing and Programming. Satisfied by:

EECS 138 Introduction to Computing: _____ (Fortran preferred; C++ and Matlab accepted) 3

Scientific Principles of Environmental Studies. Satisfied by:

EVRN 148 Scientific Principles of Environmental Studies 3

Calculus I. Satisfied by:

MATH 121 Calculus I (or equivalent) 5

or MATH 141 Calculus I: Honors

Calculus II. Satisfied by one of the following:

MATH 122 Calculus II (or equivalent) 5

or MATH 142 Calculus II: Honors

or PHSX 115 College Physics II
General Physics I. Satisfied by one of the following:

**PHSX 211** or **PHSX 114 and 201** & **PHSX 216**
General Physics I
and General Physics I Laboratory

**PHSX 213**
General Physics I Honors

General Physics II. Satisfied by one of the following:

**PHSX 212** or **PHSX 115 and 202** & **PHSX 236**
General Physics II
and General Physics II Laboratory

or **PHSX 214**
General Physics II Honors

**Concentration in Business**

An undergraduate student may graduate from the School of Business with a concentration in atmospheric science.

Atmospheric Science Prerequisite or Co-requisite Knowledge (19-22)

Student selecting this minor must complete courses as specified in each of the following areas. Majors are advised to take honors courses when eligible. These hours do not contribute to the minimum number of hours required for the major.

Computing and Programming. Satisfied by:

**EECS 138**
Introduction to Computing: _____

Calculus I. Satisfied by:

**MATH 121**
Calculus I (or equivalent)

or **MATH 141**
Calculus I: Honors

Calculus II. Satisfied by:

**MATH 122**
Calculus II (or equivalent)

or **MATH 142**
Calculus II: Honors

General Physics I. Satisfied by:

**PHSX 211** or **PHSX 114 and 201**
General Physics I

or **PHSX 213**
General Physics I Honors

Requirements for the Minor in Atmospheric Science EXCERPT
Student selecting this minor must complete courses as specified in each of the following areas:

Atmospheric Science Prerequisite or Co-requisite Knowledge (11-15)

Calculus I. Satisfied by:

**MATH 121**

Calculus I

5

or **MATH 141**

Calculus I: Honors

Calculus II. Satisfied by:

**MATH 122**

Calculus II (or equivalent)

5

or **MATH 142**

Calculus II: Honors

General Physics I. Satisfied by one of the following:

**PHSX 211** Or **PHSX 114 and 201**

& **PHSX 216**

General Physics I and General Physics I Laboratory

**PHSX 213**

General Physics I Honors

c. Changes to Existing Major – BA/BGS Classical Antiquity AND BA/BGS Classical Languages

PROPOSAL

We have proposed two new courses: CLSX 210, Greek Rhetoric in Theory and practice, and CLSX 220, Roman Oratory in Theory and Practice. We wish to make both courses electives for our Classical Languages major and for our Classical Antiquity major (which has two tracks; it will be an elective for both tracks).

JUSTIFICATION

Public speaking was a crucial element in being a citizen in the ancient world. Our language students read rhetorical texts as part of their core study of Latin and Greek. We wish to provide all our students, majors and non-majors alike, with the opportunity to study ancient rhetoric/oratory. We will also propose these courses to the KU Core committee for consideration under goal 2.2 (oral communication), thus serving our majors and attracting other interested students to the study of the ancient world.

EFFECTIVE DATE

The courses will be taught in the 2015-2016 academic year.
BIOL 155
PHAGE ISOLATION AND PURIFICATION
FALL 2014 – MON/WED 10:00 – 11:50 3009 HAWORTH
OPEN LAB: BY APPT.

INSTRUCTORS:

Robert Ward

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3076 Dole Hall

COREQUISITES: ENROLLMENT INTO BIOL 150.

COURSE DESCRIPTION:

This course is a two semester open-ended research laboratory course where students will purify bacteriophage from soil, visualize phage using electron microscopy, isolate genomic material for nucleic acid sequencing, and annotate the genome of at least one phage isolated by the class. As such, students will learn techniques used in microbiology, molecular biology and bioinformatics. Students will also develop oral and written communication skills through informal lab meetings, formal presentations (including poster presentations) and written reports.

COURSE OBJECTIVES:

1. Students will isolate their own bacteriophages, and in the process gain a mastery of wet lab microbiological and molecular techniques.
2. Students will be able to describe bacterial viruses, their ecological importance, life cycle, and the purification process.
3. Students will record, analyze and communicate their scientific findings.
**DATES AND COURSE CONTENT ON THIS SYLLABUS ARE SUBJECT TO CHANGE**

Due to the nature of this lab, we will need to be flexible with our dates and requirements. Anything is subject to change at anytime.

**GRADING**

<table>
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<tr>
<th>Requirement</th>
<th>% Grade</th>
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<tbody>
<tr>
<td>Participation</td>
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<tr>
<td>Laboratory Benchmark Achievement</td>
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<td>Oral presentation/Poster</td>
<td>20</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
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**PARTICIPATION**

An important component of your grade in this course is participation. Obviously your work cannot go on when you are not present. *Excused absences (either emergency or known in advance) must be officially documented.* Your course instructors must be notified before the next class period following an absence. Unexcused absences (5% off, each) will result in lower participation grades. Participation also includes demonstrating good research habits of mind (intrinsic curiosity, independence, asking good questions, critical evaluation of results, lab courtesy, not giving up, etc).

**LABORATORY BENCHMARK ACHIEVEMENT**

This class focuses on mastering skills appropriate to microbiology and molecular biology labs. You will be graded on completing the following tasks: pipetting, aseptic technique, direct plating, enrichment plating, identification of plaque, purification of plaque, production of web plate, isolation of high-titer lysate, DNA purification, restriction digest, and EM Visualization.

**NOTEBOOK**

You will be required to keep a detailed record of all that you do in the phage lab. This is REAL research that will one day be published, and you have a responsibility to properly document your experiments. You will be provided a lab notebook in the first full week of class. Lab notebooks must remain in lab at all times.

**IN CLASS EXERCISES**

There will be a variety of in class exercises that may or may not be announced in advance. These may include, but are not limited to, math quizzes, reading quizzes, journal discussions, and on-the-fly media preparation calculations. If it is in your lab guide, you should know how to do it.

**ADDITIONAL LAB HOURS**

You will occasionally need to come to the lab between classes. We will post times when instructors will be available to help you and which will not interfere with other classes. You should record all work in your notebook, including the dates and times you are in the lab.

**RELIGIOUS HOLIDAYS, STUDENT ATHLETES, AND STUDENTS WITH DISABILITIES**

If you need special consideration (i.e. quiet room, extra time for exams, etc.), you must provide me with a letter stating exactly what you need and proof of this necessity (e.g. a letter from Disability Services). Students with special requirements are responsible for self-identification **prior** to requesting services.
LAB MANUAL AND ASSIGNED READINGS

The laboratory manual for this course is entitled “SEA-PHAGES Student Lab Manual 2014 - In Situ.” It is available as a pdf file in the Course Documents section of Blackboard. You may print it out and bring it to class, or you can have a copy on your laptop computer or tablet. We will have files available on the computers in the lab as well. You will be assigned readings from the lab manual throughout the semester. Additional readings will be assigned and made available on Blackboard as needed. Useful websites will be posted on Blackboard as they come up in the course.

ONLINE SURVEYS FOR HHMI

You will be asked periodically to complete online surveys about your experience in this course for HHMI and NIH. The surveys are voluntary and have no impact on your grade in the course. We would appreciate your participation in these surveys and it will help shape the future of undergraduate biology in this country. The first survey should be completed before the second class. The survey can be found at:
http://www.grinnell.edu/academics/areas/psychology/assessments/sea-cure-survey

ACADEMIC INTEGRITY

(from the Statement on Academic Integrity from the School of Business Honor System): “Academic integrity is a central value in higher education. It rests on two principles: first, that academic work is represented truthfully as to its source and its accuracy, and second, that academic results are obtained by fair and authorized means. ‘Academic misconduct’ occurs when either of these principles is knowingly violated. The responsibility of academic integrity does not rest solely in the hands of the faculty and administration. It depends also on the attitude and spirit of the student body to create an atmosphere that promotes strong integrity. In other words, the students determine a school's level of character. The job of educators, therefore, is to foster and encourage a feeling of honesty and quality. In this class, the concept of individual honor is designed to promote mutual trust and respect between students and faculty.
# Tentative Schedule of Lab Activities

<table>
<thead>
<tr>
<th>Date</th>
<th>Typical timeline</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>September</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>No class, Labor Day</td>
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<tr>
<td>3</td>
<td>Course overview, Safety, Distribute phage collection tools</td>
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<tr>
<td>8</td>
<td>Direct plating, start enrichment samples</td>
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<tr>
<td>10</td>
<td>Pick plaques, plaque assays</td>
<td>Capture</td>
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<tr>
<td>15</td>
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<td>17</td>
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<tr>
<td>22</td>
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<tr>
<td>24</td>
<td>Isolate pure population</td>
<td>Tame</td>
</tr>
<tr>
<td>29</td>
<td></td>
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<tr>
<td><strong>October</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Titer phage</td>
<td>Dissect</td>
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<tr>
<td>6</td>
<td></td>
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<tr>
<td>8</td>
<td>Empirical test</td>
<td></td>
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<tr>
<td>13</td>
<td>No class, Fall Break</td>
<td></td>
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<tr>
<td>15</td>
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<tr>
<td>20</td>
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<tr>
<td>22</td>
<td>10 plate lysate (HTL)</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Extract phage DNA</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>DNA quantification/restriction analysis</td>
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<tr>
<td><strong>November</strong></td>
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<tr>
<td>3</td>
<td>Run agarose gel</td>
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<tr>
<td>5</td>
<td>EM sample prep</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>EM1/DNA QC gel</td>
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</tr>
<tr>
<td>12</td>
<td>EM2/DNA QC gel</td>
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</tbody>
</table>

- **Capture**
  - Learn basic lab techniques
  - Collect soil samples
  - Direct and enrichment plating

- **Tame**
  - Plaque isolation
  - Plaque purification and titer

- **Dissect**
  - DNA purification
  - DNA restriction digest and QC gel
  - Electron microscopy
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Phage Olympics!! Defend Your Phage…</td>
</tr>
<tr>
<td>24</td>
<td>Archive reports and samples due</td>
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<tr>
<td>26</td>
<td>No class, Thanksgiving</td>
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<tr>
<td>December 1</td>
<td>Oral presentations</td>
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<tr>
<td>3</td>
<td>Poster session</td>
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<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Papers Due</td>
</tr>
</tbody>
</table>

**Communicate**
- Papers
- Presentations
- Celebrations
<table>
<thead>
<tr>
<th>Skill</th>
<th>Data</th>
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</thead>
<tbody>
<tr>
<td>Pipetting</td>
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<tr>
<td>Aseptic technique</td>
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<tr>
<td>Direct plating</td>
<td></td>
</tr>
<tr>
<td>Enrichment plating</td>
<td></td>
</tr>
<tr>
<td>Soil Sample Collection</td>
<td>GPS 1:</td>
</tr>
<tr>
<td>Identification of plaque</td>
<td>Phage Name:</td>
</tr>
<tr>
<td>Purification of plaque</td>
<td>Number of serial dilutions performed:</td>
</tr>
<tr>
<td>Describe final plaque morphology</td>
<td>Clear/turbid/halo/comet/size/multiple</td>
</tr>
<tr>
<td>Production of web plate</td>
<td>Empirical/Intuitive</td>
</tr>
<tr>
<td>Isolation of high-titer lysate</td>
<td>Titer:</td>
</tr>
<tr>
<td>DNA purification</td>
<td>Volume:</td>
</tr>
<tr>
<td>DNA quantification</td>
<td>Concentration:</td>
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<tr>
<td>Restriction digest</td>
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<td>--------------------</td>
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<tr>
<td>EM Visualization</td>
<td>Head Diameter:</td>
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<td></td>
<td>Tail length:</td>
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</tbody>
</table>
Proposal to consider ANTH 462 as a lab/field experience course for the BA Degree Specific Requirements

ANTH 462 – Field Methods in Cultural Anthropology 3 credit hours

This course introduces students to ethical considerations, methods used in ethnographic fieldwork, field notes, coding data, analysis, and write-up. Students design and carry out research projects. Prerequisite: Anth 108/308, or Anth 160/360/162, or instructor's approval.

Requirement Explanation:
Laboratory or Field Experience. Variable credits. This course must be an academic-credit bearing laboratory or field experience. This course may be taken in conjunction with a lecture but the course combination must contain a laboratory.