MEMORANDUM

TO: **Undergraduate Curriculum Committee**

FROM: **Ron Kaufmann, Associate Dean**

DATE: **September 13, 2016**

RE: **Materials for Undergraduate Curriculum Committee Meeting 9/20/16 UC-107, 12:15-1:15 pm**

Agenda

1) Announcements
    a. Introduction of 2016-17 UCC members
        i. Absences and arranging for replacements
    b. College of Arts and Sciences Announcements (Noelle Norton)
    c. Core Curriculum Announcements (Kristin Moran)
    d. UCC Procedures for 2016-17 (pp. 2-3)
        i. Approval of minutes from each UCC meeting

2) New Business
    a. Expedited Actions
        i. ENGL 357 – Modern United States Literature (pp. 4-6)
        ii. ENGL 372 – Film Studies (pp. 7-9)
        iii. ENGL 383 – Intermediate Creative Nonfiction Writing (pp. 10-12)
        iv. ENGL 393 – Advanced Creative Nonfiction Writing (pp. 13-15)
        v. ITAL 101 – First Semester Italian (pp. 16-18)
        vi. PSYC 424W – Advanced Research Methods (pp. 19-21)

    b. Non-Expedited Actions
        i. BIOL 240 – Bioenergetics and Systems (pp. 22-26) NEW
        ii. BIOL 240L – Bioenergetics and Systems Laboratory (pp. 27-31) NEW
        iii. BIOL 242 – Genomes and Evolution (pp. 32-37) NEW
        iv. BIOL 242L – Genomes and Evolution Laboratory (pp. 38-42) NEW
        v. HNRS 3XX – Life and Moving Fluids (pp. 43-49) NEW

3) Adjournment

All revisions to existing courses or programs, and submissions of a new course or program for review must be submitted through the USD Course Inventory Management system. This can be accessed via the MySanDiego portal by going to the Teach/Advise Tab and looking in the Faculty Tools box in the upper left portion of the screen. The Faculty Tools list includes two links:

Online Catalog Course Submission (CIM)
Online Catalog Program Submission (CAT)

Submission of course or program actions implies that proposals have received Department or Program approval, and the results of a Department/Program vote must be included on each submission. This information can be provided by the person submitting the proposal or by the department chair, when they approve the proposal in CIM/CAT.

Proposed curricular actions must be submitted through CIM/CAT and approved by the department chair or program director **at least one week** prior to an upcoming UCC meeting in order to be included on the agenda for that meeting. Agendas and meeting materials for upcoming UCC meetings will be posted on the UCC website at least five days prior to each meeting. **No printed copies of materials will be provided.**

Expedited actions will be placed as the first item(s) on the UCC agenda and automatically approved by the Committee in the absence of objections.

Non-expedited actions potentially impact other programs and/or departments, which should be provided two weeks to review the submitted materials and furnish comments to the submitting department prior to UCC consideration. All submitted comments will be made available to the submitting department for their response. After the response is received, materials will be made available for UCC Committee members, and the item will be listed on a UCC agenda. At the UCC meeting, a short period of time for brief comments and questions, along with an opportunity to object, will be given for each agenda item.

For proposals of new courses and revisions to majors and minors submitted to the committee in departmental reports, the committee will accept reports unless objections are raised, in which case discussion and a vote will follow.

New academic programs, including new majors or degrees, must go through the *Academic Program Review Process* (http://www.sandiego.edu/provost/docs-forms/academic-initiatives-procedures.php).

Expedited Actions

- Change in course # that will not affect other majors/minors in any College/School
- Change in course title (editorial only)
- Change in course pre-requisite(s) that will not affect other majors/minors in any College/School
- Catalog description change (editorial only)
- Deletion of course(s) that will not affect other majors/minors in any College/School

Non-Expedited Curricular Changes

- Change in course pre-requisite(s) that will affect other majors/minors in any College/School
- Deletion of course(s) that will affect other majors/minors in any College/School
- Addition of new course
- Revision of existing course
- Revision of existing major/minor/program/concentration/pathway

Proposals of new courses and revisions to majors and minors submitted to the committee will be accepted by the committee, unless objections are raised, in which case discussion and a vote will follow.

Course Change Request

Date Submitted: 05/12/16 3:00 pm

Viewing: ENGL 357 : Modern United States Literature

Last edit: 06/10/16 1:42 pm

Changes proposed by: astoll

In Workflow

1. **ENGL Chair**
2. **AS Associate Dean**
3. Registrar
4. Banner

Approval Path

1. 05/12/16 4:15 pm
   Cynthia Caywood (ccaywood): Approved for ENGL Chair

Catalog Pages referencing this course	English (ENGL)

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Abe Stoll	**astoll@**	**7535**

Effective Term	Spring 2017		
Subject Code	ENGL	Course Number	357
Department	English (ENGL)		
College	College of Arts & Sciences		
Title of Course	Modern U.S. Literature		
Catalog Title	Modern United States Literature		
Credit Hours	3		
Weekly Contact Hours	Lecture: **3**	Lab:	Other:
Catalog Course Description	Readings may include works by James, Adams, Gilman, DuBois, Stein, Wright, W.C. **Williams, T.** Williams, ~~T.Williams,~~ Baldwin, Rich, Sexton, Lorde, Faulkner, **Fitzgerald, Ginsberg, Stevens,** ~~Fitzgerald~~ or others. ~~May be repeated when topic changes.~~		
Primary Grading Mode	Standard Grading System- Final		
Other Grading Mode(s) *(Check all that apply)*	Pass/Fail Grading System		
Primary method of delivery	Lecture		
Other method(s) of delivery *(Check all that apply)*			
Faculty Course Workload	**Same as course credit**		

Is this course cross-listed?

No

Prerequisites?

Does this course have concurrent Prerequisites?

No

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

Repeatable with different Topics

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Writing

Course attributes

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
English-- ENGL

Department Restrictions:

Major Restrictions:

Class Restrictions: Include

Class Codes: JR, S2, SR

Level Restrictions: Include

Level Codes: UG

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: No: Abstain:

Rationale: New course description.

Supporting documents

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

none

Will this change have any staffing/budgetary impact?

Will this change impact student enrollment numbers?

Course Reviewer Comments

Key: 766

Course Change Request

Date Submitted: 05/12/16 3:17 pm

Viewing: ENGL 372 : Film Studies

Last edit: 06/10/16 1:46 pm

Changes proposed by: astoll

Catalog Pages referencing this course	English (ENGL)

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Abe Stoll	astoll@	7535

Effective Term	Spring 2017		
Subject Code	ENGL	Course Number	372
Department	English (ENGL)		
College	College of Arts & Sciences		
Title of Course	Film Studies		
Catalog Title	Film Studies		
Credit Hours	3		
Weekly Contact Hours	Lecture: 3	Lab:	Other:
Catalog Course Description	Aspects of film as narrative are considered. Topics may include film genres (the silents and early talkies, historical dramas, film noir, cinéma vérité), cinematic adaptation of literary texts, film theory, and the history of film. ~~Restricted to English majors. May be repeated when topic changes.~~		
Primary Grading Mode	Standard Grading System- Final		
Other Grading Mode(s) *(Check all that apply)*	Pass/Fail Grading System		
Primary method of delivery	Lecture		
Other method(s) of delivery *(Check all that apply)*			
Faculty Course Workload	**Same as course credit**		

Is this course cross-listed?

No

In Workflow

1. **ENGL Chair**
2. **AS Associate Dean**
3. Registrar
4. Banner

Approval Path

1. 05/12/16 4:15 pm Cynthia Caywood (ccaywood): Approved for ENGL Chair

Prerequisites?

Does this course have concurrent Prerequisites? **No**

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

Repeatable with different Topics

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Course attributes

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
English-- ENGL

Department Restrictions:

Major Restrictions: ~~Include~~

Class Restrictions: Include

Class Codes: JR, S2, SR

Level Restrictions: Include

Level Codes: UG

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: No: Abstain:

Rationale: small change to description; removed "Restricted to English majors" and redundancy with repeatable designation

Supporting documents

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

none

Will this change have any staffing/budgetary impact?

Will this change impact student enrollment numbers?

Course Reviewer Comments

Key: 775

Course Change Request

Date Submitted: 05/24/16 11:01 am

Viewing: ENGL 383 : Intermediate Creative Nonfiction Writing

Last edit: 06/10/16 1:49 pm

Changes proposed by: astoll

In Workflow

1. **ENGL Chair**
2. **AS Associate Dean**
3. Registrar
4. Banner

Approval Path

1. 05/24/16 11:32 am
   Cynthia Caywood (ccaywood): Approved for ENGL Chair

Catalog Pages referencing this course	English English (ENGL)
Other Courses referencing this	As A Banner Prerequisite:

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Abe Stoll	**astoll@**	**7535**

Effective Term	Spring 2017		
Subject Code	ENGL	Course Number	383
Department	English (ENGL)		
College	College of Arts & Sciences		
Title of Course	Intermed Nonfiction Writing		
Catalog Title	Intermediate **Creative** Nonfiction Writing		

Credit Hours	3
Weekly Contact Hours	Lecture: **3** Lab: Other:
Catalog Course Description	Workshop in **creative** nonfiction writing, with examples drawn from literature.
Primary Grading Mode	Standard Grading System- Final
Primary method of delivery	Lecture
Other method(s) of delivery *(Check all that apply)*	
Faculty Course Workload	**Same as course credit**

Is this course cross-listed?	No
Prerequisites?	ENGL **375** ~~375.~~
Does this course	**No**

have concurrent Prerequisites?

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

No

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Course attributes

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
English-- ENGL

Department Restrictions:

Major Restrictions:

Class Restrictions: Include

Class Codes: JR, S2, SR

Level Restrictions: Include

Level Codes: UG

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: No: Abstain:

Rationale: Just added the word "creative" to title and description. For clarity.

Supporting

documents

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

none

Will this change have any staffing/budgetary impact?

Will this change impact student enrollment numbers?

Course Reviewer Comments

Key: 782

Course Change Request

Date Submitted: 05/24/16 11:04 am

Viewing: ENGL 393 : Advanced Creative Nonfiction Writing

Last edit: 06/10/16 1:49 pm

Changes proposed by: astoll

In Workflow

1. **ENGL Chair**
2. **AS Associate Dean**
3. Registrar
4. Banner

Approval Path

1. 05/24/16 11:32 am
   Cynthia Caywood (ccaywood): Approved for ENGL Chair

Catalog Pages referencing this course	English (ENGL)

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Abe Stoll	**astoll@**	**7535**

Effective Term	Spring 2017
Subject Code	ENGL Course Number 393
Department	English (ENGL)
College	College of Arts & Sciences
Title of Course	Advanced Nonfiction Writing
Catalog Title	Advanced **Creative** Nonfiction Writing
Credit Hours	3
Weekly Contact Hours	Lecture: **3** Lab: Other:
Catalog Course Description	Workshop to **discuss** ~~discussed~~ published **creative** nonfiction writing and students' own work.
Primary Grading Mode	Standard Grading System- Final
Primary method of delivery	Lecture
Other method(s) of delivery *(Check all that apply)*	
Faculty Course Workload	**Same as course credit**

Is this course cross-listed?	No
Prerequisites?	ENGL **383** ~~383.~~
Does this course	**No**

have concurrent Prerequisites?

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

No

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Course attributes

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
English-- ENGL

Department Restrictions:

Major Restrictions:

Class Restrictions: Include

Class Codes: JR, S2, SR

Level Restrictions: Include

Level Codes: UG

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: No: Abstain:

Rationale: Added creative to title and description and fixed syntax error.

Supporting

documents

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

none

Will this change have any staffing/budgetary impact?

Will this change impact student enrollment numbers?

Course Reviewer Comments

Key: 786

Course Change Request

Date Submitted: 05/10/16 12:28 pm

Viewing: ITAL 101 : First Semester Italian

Last edit: 06/10/16 1:50 pm

Changes proposed by: ldm

Catalog Pages referencing this course	Italian (ITAL) Italian Studies
Other Courses referencing this	As A Banner Prerequisite:

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Loredana Di Martino	ldm@sandiego.edu	2746

Effective Term	Spring 2017		
Subject Code	ITAL	Course Number	101
Department	Languages & Literature (LANG)		
College	College of Arts & Sciences		
Title of Course	First Semester Italian		
Catalog Title	First Semester Italian		
Credit Hours	3		
Weekly Contact Hours	Lecture: **3** ~~0~~	Lab: 0	Other: 0

Catalog Course Description

Essentials of Italian grammar with emphasis on communicative proficiency and cultural awareness. Development of the four skills of listening, speaking, reading and writing. **Students with no previous knowledge of Italian must complete the Waiver for 101 on the Department's website (https://www.sandiego.edu/cas/languages/requirements-and-placement/). Students with some knowledge of Italian must take the USD Placement Exam on the same website and register in the appropriate level.** Every semester.

Primary Grading Mode

Standard Grading System- Final

Other Grading Mode(s) *(Check all that apply)*

Auditing Permitted

Primary method of delivery

Lecture

Other method(s) of delivery *(Check all that apply)*

In Workflow

1. **LANG Chair**
2. **AS Associate Dean**
3. Registrar
4. Banner

Approval Path

1. 05/10/16 6:53 pm
   Michele Magnin (mmagnin): Approved for LANG Chair

Faculty Course Workload **Same as course credit**

Is this course cross-listed?

No

Prerequisites? **Waiver for 101 or USD placement exam taken within the past twelve months.** ~~Placement exam or waiver of placement.~~

Does this course have concurrent Prerequisites? **No**

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

No

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Course attributes

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
Italian-- ITAL

Department Restrictions:

Major Restrictions:

Class Restrictions:

Level Restrictions: Include

Level Codes: UG

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: **13** No: **0** Abstain: **2**

Rationale: The slight change in wording serves to clarify the placement policy for Italian 101.

Supporting documents

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

None

Will this change have any staffing/budgetary impact?

No

Will this change impact student enrollment numbers?

No

Course Reviewer Comments

Michele Magnin (mmagnin) (04/17/16 9:09 am): Rollback: Since this includes description changes that will not come into effect until 2017, let's hold off for now. There may be more changes to implement across all languages. Let us take our time.

Key: 1301

Course Change Request

A deactivated record cannot be edited.

Course Deactivation Proposal

Date Submitted: 05/03/16 10:44 am

Viewing: PSYC 424W : Advanced Research Methods / Laboratory In Cross-Cultural Psychology

Last edit: 05/03/16 10:44 am

Changes proposed by: akoenig

Catalog Pages referencing this course	Psychology (PSYC)
Programs referencing this	BA-PSYC: Psychology Major

In Workflow

1. PSYC Chair
2. AS Associate Dean
3. Registrar

Approval Path

1. 07/29/16 7:48 pm Jennifer Zwolinski (jzwolinski): Approved for PSYC Chair

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Anne Koenig	akoenig@sandiego.edu	4046

Effective Term	Spring 2016		
Subject Code	PSYC	Course Number	424W
Department	Psychological Sciences (PSYC)		
College	College of Arts & Sciences		
Title of Course	Adv Research Methods/CC		
Catalog Title	Advanced Research Methods / Laboratory In Cross-Cultural Psychology		
Credit Hours	3		
Weekly Contact Hours	Lecture: 0	Lab: 0	Other: 0
Catalog Course Description	This course explores the research methods, both laboratory and field, used in the study of human behavior across cultures. The course requires reading of original research, completion of laboratory projects, and a research paper.		
Primary Grading Mode	Standard Grading System- Final		
Other Grading Mode(s) *(Check all that apply)*	Pass/Fail Grading System		
Method(s) of delivery *(Check all that apply)*	Lecture/Lab		

Faculty Course Workload

Is this course cross-listed?

No

Prerequisites? ENGL 121, PSYC 101, 230, 260, and concurrent enrollment in, or prior completion of, PSYC 324.

Does this course have concurrent Prerequisites? Yes

Please list them in the box below.

Are there 1 or more Co-Requisites?

Is this course a topics course?

Is this course repeatable for credit?

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Course attributes

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Department Restrictions:

Major Restrictions:

Class Restrictions: Include

Class Codes: JR, S2, SR

Level Restrictions: Include

Level Codes: UG

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: No: Abstain:

Rationale:

Supporting documents

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

Will this change have any staffing/budgetary impact?

Will this change impact student enrollment numbers?

Course Reviewer Comments

Key: 2257

New Course Proposal

Date Submitted: 08/30/16 3:21 pm

Viewing: BIOL 240 : Bioenergetics and Systems

Last edit: 08/30/16 3:21 pm

Changes proposed by: mayer

In Workflow

1. **BIOL Chair**
2. **AS Associate Dean**
3. Core Curricula Chair
4. Registrar
5. Banner

Approval Path

1. 08/30/16 3:26 pm Michael Mayer (mayer): Approved for BIOL Chair

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Michael Mayer	mayer@sandiego.edu	4081

Effective Term: Fall 2017

Subject Code: BIOL Course Level: Undergraduate Course Number: 240

Department: Biology (BIOL)

College: College of Arts & Sciences

Title of Course: Bioenergetics and Systems

Catalog Title: Bioenergetics and Systems

Credit Hours: 3

Weekly Contact Hours: Lecture: 3 Lab: Other:

Catalog Course Description: This one-semester course for biology majors provides an introduction to the mechanisms of energy flow within cells and between organisms and the environment. Lecture topics will include cellular respiration and photosynthesis, organismal physiology and locomotion, and ecological interactions. Concurrent registration in 240L is strongly recommended, and required for Core credit. Offered every semester.

Primary Grading Mode: Standard Grading System- Final

Other Grading Mode(s) *(Check all that apply)*

Standard Grading System- Final

Method(s) of delivery *(Check all that apply)*: Lecture

Faculty Course Workload: Same as course credit

Is this course cross-listed?

No

Prerequisites? no

Does this course have concurrent: No

Prerequisites?

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

No

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Science/Tech Inquiry area

Course attributes

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
Biology - BIOL
Biochemistry - BIOC
Biophysics - BIOP
Behavioral Neuroscience - NEUR
Environmental & Ocean Sciences - EOSC

Department Restrictions:

Major Restrictions:

Class Restrictions:

Level Restrictions:

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: 13 No: 0 Abstain: 0

Rationale: The Biology Department has reconstructed its introductory biology series, moving from a three-semester experience that included three lectures and 2 laboratories (Bio 190, 221, 221L, 225, 225L) to one with two lecture courses with associated laboratories, either pair of

which (240/240L or 242/242L) can be taken first. We have undertaken this change for a variety of reasons: (1) to bring our introductory offerings in compliance with new Core Curriculum requirements, (2) to incorporate new pedagogy and join a nation-wide movement to make course offerings more inquiry-based, and (3) to create a less-complicated flow through the curriculum for majors at the lower division, which also aids transfer students coming in from programs that offered the standard two semesters of introductory biology.

Supporting documents

BIOL 240&240L LO Assessment.docx
Biology 240 lecture syllabus.docx

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

This change has been anticipated in the Biology Majors curriculum, which we have designed to be an integrated, holistic experience. Bio 240 and 242 will better prepare our students to tackle more complicated biological concepts and engage in research as part of their degree . The Biology Program also will save resources by eliminating one 3-unit lecture. Other USD programs will need to review the syllabi of the new courses to determine which of these courses will be useful in their curriculum. It is likely that programs such as Biochemistry and Biophysics and Marine Science will choose one of the courses (240 or 242) to replace their requirement for Bio 225 or 221, leaving no net impact. Programs like Behavioral Neurosciences will benefit from the reduction from three to two semesters of general biology, as they currently require all three semesters of introductory biology

Will this change have any staffing/budgetary impact?

Yes

Provide a brief explanation (include commentary on personnel, facilities, library holdings and academic computing)

As mentioned above, eliminating a three-unit lecture that has been required of Biology majors and minors, Pre-health students, and as preparation for other science majors, will free up personnel resources in the Biology department. Hopefully, these savings will translate into a slightly lower reliance on adjunct faculty, who do the bulk of the teaching at the lower division. There will be no net impact on facilities (other than freeing up lecture rooms across campus), library holdings, or academic computing.

Will this change impact student enrollment numbers?

Yes

In what courses and in what ways?

The changes to the lower division requirements in Biology will free up three elective units for Biology Majors, Minors, and Pre-health students. This may create a minor ripple of enrollment increases across the College.

Course Reviewer Comments

Key: 2689

Biology 240 – Bioenergetics & Systems

Instructor:
Office:
Phone #:
email:
Office hrs:
Text: Campbell Biology (Reece et al.)

This one-semester course for biology majors provides an introduction to the mechanisms of energy flow within cells and between organisms and the environment. Lecture topics will include cellular respiration and photosynthesis, organismal physiology and locomotion, and ecological interactions. The laboratory will include inquiry into the mechanisms of physiology, including testing novel hypotheses concerning bioenergetics.

Bio 240 and Bio 240L (the associated laboratory course) are designed to be taken concurrently, and constitute half of the year of introductory biology. Bio 242 and 242L, Genomes and Evolution, should be taken the semester before or after Bio 240. This introductory series meets the general biology requirements of the biology major and health science professional programs, as well as the Core requirement for Scientific and Technological Inquiry. Students in majors other than the sciences should consider taking designated biology courses below the 200-level to fulfill this Core requirement.

Course Learning Outcomes

At the end of the semester a student who takes both Bio 240 lecture and lab should be able to:

1. *Design and conduct an experimental and/or observational investigation to generate scientific knowledge.*
2. *Analyze data using methods appropriate to Biology in order to make valid and reliable interpretations.*
3. *Explain the basic scientific concepts and theories relevant to the area of study.*
4. *Identify and use appropriate and sufficient scientific evidence to evaluate claims and explanations about the natural world.*

Lecture Schedule for Bioenergetics and Systems (Bio 240)

Date	Topic
Week 1	Introduction to Biological Molecules
Week 2	Basic Cell Anatomy
Week 3	Basic Chemistry/Physics Principles
Week 4	Cellular Respiration
Week 5	Cellular Respiration
Week 6	Photosynthesis
Week 7	Membrane Structure/Function - Transport
Week 8	Locomotion
Week 9	Sensing & Signaling / Homeostasis
Week 10	Support of Energy Flow - Gas Exchange
Week 11	Waste Excretion
Week 12	Trophic Structure
Week 13	Interspecific Interactions & Natural Selection
Week 14	Nutrient Cycling

New Course Proposal

Date Submitted: 08/30/16 3:22 pm

Viewing: BIOL 240L : Bioenergetics and Systems Laboratory

Last edit: 08/30/16 3:22 pm

Changes proposed by: mayer

In Workflow

1. **BIOL Chair**
2. **AS Associate Dean**
3. Core Curricula Chair
4. Registrar
5. Banner

Approval Path

1. 08/30/16 3:26 pm Michael Mayer (mayer): Approved for BIOL Chair

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Michael Mayer	mayer@sandiego.edu	4081

Effective Term: Fall 2017

Subject Code: BIOL Course Level: Undergraduate Course Number: 240L

Department: Biology (BIOL)

College: College of Arts & Sciences

Title of Course: Bioenergetics and Systems Lab

Catalog Title: Bioenergetics and Systems Laboratory

Credit Hours: 1

Weekly Contact Hours: Lecture: Lab: 4 Other:

Catalog Course Description: This one-semester course for biology majors provides an introduction to the mechanisms of energy flow within cells and between organisms and the environment. The laboratory will include inquiry into the mechanisms of physiology, including testing novel hypotheses concerning bioenergetics. Concurrent registration in 240 is strongly recommended, and required for Core credit. Offered every semester.

Primary Grading Mode: Standard Grading System- Final

Other Grading Mode(s) *(Check all that apply)*

Standard Grading System- Final

Method(s) of delivery *(Check all that apply)*: Lab

Faculty Course Workload: Percent of weekly contact hours

Please specify: 3 units faculty course load (4 hours X 0.67 units per hour = 2.67 units)

Is this course cross-listed?

No

Prerequisites?

Does this course have concurrent Prerequisites? No

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

No

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Science/Tech Inquiry area

Course attributes Lab

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
Biology - BIOL
Biochemistry - BIOC
Biophysics - BIOP
Behavioral Neuroscience - NEUR
Environmental & Ocean Sciences - EOSC

Department Restrictions:

Major Restrictions:

Class Restrictions:

Level Restrictions:

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: 13 No: 0 Abstain: 0

Rationale:

The Biology Department has reconstructed its introductory biology series, moving from a three-semester experience that included three lectures and 2 laboratories (Bio 190, 221, 221L, 225, 225L) to one with two lecture courses with associated laboratories, either pair of which (240/240L or 242/242L) can be taken first. We have undertaken this change for a variety of reasons: (1) to bring our introductory offerings in compliance with new Core Curriculum requirements, (2) to incorporate new pedagogy and join a nation-wide movement to make course offerings more inquiry-based, and (3) to create a less-complicated flow through the curriculum for majors at the lower division, which also aids transfer students coming in from programs that offered the standard two semesters of introductory biology.

Supporting documents

BIOL 240&240L LO Assessment.docx
Biology 240L lab syllabus.docx

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

This change has been anticipated in the Biology Majors curriculum, which we have designed to be an integrated, holistic experience. Bio 240 and 242 will better prepare our students to tackle more complicated biological concepts and engage in research as part of their degree . The Biology Program also will save resources by eliminating one 3-unit lecture. Other USD programs will need to review the syllabi of the new courses to determine which of these courses will be useful in their curriculum. It is likely that programs such as Biochemistry and Biophysics and Marine Science will choose one of the courses (240 or 242) to replace their requirement for Bio 225 or 221, leaving no net impact. Programs like Behavioral Neurosciences will benefit from the reduction from three to two semesters of general biology, as they currently require all three semesters of introductory biology.

Will this change have any staffing/budgetary impact?

Yes

Provide a brief explanation (include commentary on personnel, facilities, library holdings and academic computing)

As mentioned above, eliminating a three-unit lecture that has been required of Biology majors and minors, Pre-health students, and as preparation for other science majors, will free up personnel resources in the Biology department. Hopefully, these savings will translate into a slightly lower reliance on adjunct faculty, who do the bulk of the teaching at the lower division. There will be no net impact on facilities (other than freeing up lecture rooms across campus), library holdings, or academic computing.

Will this change impact student enrollment numbers?

Yes

In what courses and in what ways?

The changes to the lower division requirements in Biology will free up three elective units for Biology Majors, Minors, and Pre-health students. This may create a minor ripple of enrollment increases across the College.

Course Reviewer Comments

Key: 2690

BIOLOGY 240L - Bioenergetics and Systems Laboratory

Day: **Time:**
Room
Instructor:
Course Website-Blackboard (ole.sandiego.edu)

Course Philosophy

In Biology 240, students will be studying the flow of energy through the different levels of biological systems, from cells to ecosystems. Students will also be introduced to the scientific method as they pursue questions of bioenergetics at various levels of biological organization, including integration both laboratory and field experimental/observational approaches and analyses. Comprehension of the concepts will stem from your readings and group discussions. Your ability to relay information will be assessed through oral (presentations, participation in group discussions) and written communication (assignments, reports and lab notebook).

Course Learning Outcomes

At the end of the semester a student should be able to:

1. *Design and conduct an experimental and/or observational investigation to generate scientific knowledge.*
2. *Analyze data using methods appropriate to the natural sciences in order to make valid and reliable interpretations.*
3. *Explain the basic scientific concepts and theories relevant to the area of study.*
4. *Identify and use appropriate and sufficient scientific evidence to evaluate claims and explanations about the natural world.*

Biol 240-Bioenergetics and Systems **Tentative Laboratory Schedule**

Date	Assignment
Week 1	Course introduction/Organization/Intro to Scientific Method Basic Laboratory Techniques – micropipetting, colormetric assay on spectrophotometer
Week 2	Scientific Method and Module 1 discussion **Intro to Module 1 study system**: **cellular/organismal metabolism** Group discussion: hypothesis and experimental design discussion/intro, set up and practice of techniques
Week 3- Module 1	Experiment execution #1, sampling and measurement, data collection
Week 4	Analyses of data, summary of data, group discussion- hypotheses supported or rejected? Repeat experiment? Alternate experiment?
Week 5	Experiment execution#2, sampling and measurement, data collection
Week 6	Analyses of data, summary of data, group discussion-hypotheses supported or rejected?
Week 7	Group Presentations of future experiments/Group discussion
Week 8- Module	Report due/ **Intro to Module 2 study system: organismal to**

2	**ecosystem** hypothesis testing in the field: challenges and opportunities, field techniques: chlorophyll a, reflectance, biomass, etc.
Week 9	Fieldtrip 1: Pre-trials. Pose questions, make observations, collect materials. Lab analysis of collected materials.
Week 10	Analysis and discussion of outcomes from pre-trials. Introduction to statistics. Questions, hypotheses, experimental design for Trial 2.
Week 11	Fieldtrip 2: Trial 1. Field sampling, data collection, analysis in lab.
Week 12	Fieldtrip 3: Trial 2. Field sampling, data collection, analysis in lab.
Week 13	Group Presentations/Discussion
Week 14	Report due/Final Discussion

New Course Proposal

Date Submitted: 08/30/16 2:53 pm

Viewing: BIOL 242 : Genomes and Evolution

Last edit: 08/30/16 2:53 pm

Changes proposed by: mayer

In Workflow

1. **BIOL Chair**
2. **AS Associate Dean**
3. Core Curricula Chair
4. Registrar
5. Banner

Approval Path

1. 08/30/16 3:26 pm Michael Mayer (mayer): Approved for BIOL Chair

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Michael Mayer	mayer@sandiego.edu	4081

Effective Term: Fall 2017

Subject Code: BIOL Course Level: Undergraduate Course Number: 242

Department: Biology (BIOL)

College: College of Arts & Sciences

Title of Course: Genomes and Evolution

Catalog Title: Genomes and Evolution

Credit Hours: 3

Weekly Contact Hours: Lecture: 3 Lab: Other:

Catalog Course Description: This one-semester course for biology majors provides an introduction to the mechanisms of information flow through organisms and their lineages. Lecture topics will include the use and change of hereditary information in DNA, the mechanisms of evolution, and the relationships among major groups of organisms. Concurrent registration in 242L is strongly recommended, and required for Core credit. Offered every semester.

Primary Grading Mode: Standard Grading System- Final

Other Grading Mode(s) *(Check all that apply)*

Standard Grading System- Final

Method(s) of delivery *(Check all that apply)*: Lecture

Faculty Course Workload: Same as course credit

Is this course cross-listed?

No

Prerequisites?

Does this course have concurrent Prerequisites? No

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

No

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Science/Tech Inquiry area

Course attributes

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
Biology - BIOL
Biochemistry - BIOC
Biophysics - BIOP
Behavioral Neuroscience - NEUR
Environmental & Ocean Sciences - EOSC

Department Restrictions:

Major Restrictions:

Class Restrictions:

Level Restrictions:

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: 13 No: 0 Abstain: 0

Rationale: The Biology Department has reconstructed its introductory biology series, moving from a three-semester experience that included three lectures and 2 laboratories (Bio 190, 221, 221L, 225, 225L) to one with two lecture courses with associated laboratories, either pair of which (240/240L or 242/242L) can be taken first. We have undertaken this change for a variety of reasons: (1) to bring our introductory offerings in compliance with new Core

Curriculum requirements, (2) to incorporate new pedagogy and join a nation-wide movement to make course offerings more inquiry-based, and (3) to create a less-complicated flow through the curriculum for majors at the lower division, which also aids transfer students coming in from programs that offered the standard two semesters of introductory biology.

Supporting documents

Biology 242 lecture syllabus.docx
BIOL 242&242L LO Assessment.docx

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

This change has been anticipated in the Biology Majors curriculum, which we have designed to be an integrated, holistic experience. Bio 240 and 242 will better prepare our students to tackle more complicated biological concepts and engage in research as part of their degree . The Biology Program also will save resources by eliminating one 3-unit lecture. Other USD programs will need to review the syllabi of the new courses to determine which of these courses will be useful in their curriculum. It is likely that programs such as Biochemistry and Biophysics and Marine Science will choose one of the courses (240 or 242) to replace their requirement for Bio 225 or 221, leaving no net impact. Programs like Behavioral Neurosciences will benefit from the reduction from three to two semesters of general biology, as they currently require all three semesters of introductory biology.

Will this change have any staffing/budgetary impact?

Yes

Provide a brief explanation (include commentary on personnel, facilities, library holdings and academic computing)

As mentioned above, eliminating a three-unit lecture that has been required of Biology majors and minors, Pre-health students, and as preparation for other science majors, will free up personnel resources in the Biology department. Hopefully, these savings will translate into a slightly lower reliance on adjunct faculty, who do the bulk of the teaching at the lower division. There will be no net impact on facilities (other than freeing up lecture rooms across campus), library holdings, or academic computing.

Will this change impact student enrollment numbers?

Yes

In what courses and in what ways?

The changes to the lower division requirements in Biology will free up three elective units for Biology Majors, Minors, and Pre-health students. This may create a minor ripple of enrollment increases across the College.

Course Reviewer Comments

Key: 2691

Biology 242 – Genomes & Evolution

Instructor:
Office:
Phone #:
email:
Office hrs:
Text: Campbell Biology (Reece et al.)

This one-semester course for biology majors provides an introduction to the mechanisms of information flow through organisms and their lineages. Lecture topics will include the use and change of hereditary information in DNA, the mechanisms of evolution, and the relationships among major groups of organisms. The laboratory will include inquiry into the structure and function of DNA, and testing hypotheses of evolution and phylogeny.

Bio 242 and Bio 242L (the associated laboratory course) are designed to be taken concurrently, and constitute half of the year of introductory biology. Bio 240 and 240L, Bioenergetics and Systems, should be taken the semester before or after Bio 242. This introductory series meets the general biology requirements of the biology major and health science professional programs, as well as the Core requirement for Scientific and Technological Inquiry. Students in majors other than the sciences should consider taking designated biology courses below the 200-level to fulfill this Core requirement.

Course Learning Outcomes

At the end of the semester a student who takes both Bio 242 lecture and lab should be able to:

1. *Design and conduct an experimental and/or observational investigation to generate scientific knowledge.*
2. *Analyze data using methods appropriate to Biology in order to make valid and reliable interpretations.*
3. *Explain the basic scientific concepts and theories relevant to the area of study.*
4. *Identify and use appropriate and sufficient scientific evidence to evaluate claims and explanations about the natural world.*

Lecture Schedule for Genomes and Evolution (Bio 242)

Week 1	The tree of life and the diversity of life forms ⇒ Major evolutionary events ⇒ Organismal structure and function ⇒ Niches and ecosystems ⇒ Homology ⇒ Phylogenetic trees
Week 2	Genome structure ⇒ Relationship between genotype and phenotype ⇒ Fitness and natural selection
Week 3	Protein structure and function ⇒ The properties functional groups ⇒ The properties of amino acids ⇒ Covalent, ionic, hydrogen and hydrophobic interactions
Week 4	Protein structure and function ⇒ Primary, secondary, tertiary and quaternary structure ⇒ The effect of mutations on protein structure and function
Week 5	Nucleic acid and chromosome structure ⇒ DNA double helix structure ⇒ RNA structure ⇒ Importance of base pairing ⇒ Relationships between gene, allele and locus ⇒ Role of histones
Week 6	Central dogma - transcription ⇒ Relationship between DNA structure and transcription ⇒ Interactions between RNA polymerase and promoters mRNA processing
Week 7	Central dogma – translation ⇒ Genetic code ⇒ Ribosome function ⇒ tRNA function
Week 8	DNA replication ⇒ Relationship between DNA structure and replication ⇒ DNA polymerase function and roles of accessory factors DNA repair and mutations ⇒ Types and cause of of DNA damage/replication errors
Week 9	Mutations ⇒ Coding versus noncoding mutations and their consequences ⇒ Creation of new alleles Mutations and their effects on fitness
Week 10	Mitosis and Meiosis ⇒ The cell cycle

	⇒ Replication of somatic tissue ⇒ Formation of gametes ⇒ Stages of meiosis ⇒ Sources of genetic variation
Week 11	Population genetics ⇒ Gene pool concept ⇒ Genotypic and allelic frequencies ⇒ Introduction to Hardy-Weinberg ⇒ Contributions of genetic drift, gene flow, bottlenecks ⇒ Natural selection
Week 12	Macroevolution ⇒ Allopatric and sympatric speciation ⇒ Adaptive radiation ⇒ Coevolution ⇒ Convergent evolution
Week 13	Extinction

New Course Proposal

Date Submitted: 08/30/16 3:23 pm

Viewing: BIOL 242L : Genomes and Evolution Laboratory

Last edit: 08/30/16 3:23 pm

Changes proposed by: mayer

In Workflow

1. **BIOL Chair**
2. **AS Associate Dean**
3. Core Curricula Chair
4. Registrar
5. Banner

Approval Path

1. 08/30/16 3:26 pm Michael Mayer (mayer): Approved for BIOL Chair

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Michael Mayer	mayer@sandiego.edu	4081

Effective Term: Fall 2017

Subject Code: BIOL Course Level: Undergraduate Course Number: 242L

Department: Biology (BIOL)

College: College of Arts & Sciences

Title of Course: Genomes and Evolution Lab

Catalog Title: Genomes and Evolution Laboratory

Credit Hours: 1

Weekly Contact Hours: Lecture: Lab: 4 Other:

Catalog Course Description: This one-semester course for biology majors provides an introduction to the mechanisms of information flow through organisms and their lineages. The laboratory will include inquiry into the structure and function of DNA, and testing hypotheses of evolution and phylogeny. Concurrent registration in 242 is strongly recommended, and is required for Core credit. Offered every semester.

Primary Grading Mode: Standard Grading System- Final

Other Grading Mode(s) *(Check all that apply)*

Standard Grading System- Final

Method(s) of delivery *(Check all that apply)*: Lecture

Faculty Course Workload: Percent of weekly contact hours

Please specify: 3 units workload (4 contact hours X 0.67 units per hour = 2.67 units)

Is this course cross-listed?

No

Prerequisites?

Does this course have concurrent Prerequisites? No

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

No

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Science/Tech Inquiry area

Course attributes Lab

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
Biology - BIOL
Biochemistry - BIOC
Biophysics - BIOP
Behavioral Neuroscience - NEUR
Environmental & Ocean Sciences - EOSC

Department Restrictions:

Major Restrictions:

Class Restrictions:

Level Restrictions:

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: 13 No: 0 Abstain: 0

Rationale: The Biology Department has reconstructed its introductory biology series, moving from a three-semester experience that included three lectures and 2 laboratories (Bio 190, 221, 221L, 225, 225L) to one with two lecture courses with associated laboratories, either pair of which (240/240L or 242/242L) can be taken first. We have undertaken this change for a variety of reasons: (1) to bring our introductory offerings in compliance with new Core Curriculum requirements, (2) to incorporate new pedagogy and join a nation-wide movement to make course offerings more inquiry-based, and (3) to create a less-complicated flow through the curriculum for majors at the lower division, which also aids transfer students coming in from programs that offered the standard two semesters of introductory biology.

Supporting documents
Bio 242 Lab Syllabus.docx
BIOL 242&242L LO Assessment.docx

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

This change has been anticipated in the Biology Majors curriculum, which we have designed to be an integrated, holistic experience. Bio 240 and 242 will better prepare our students to tackle more complicated biological concepts and engage in research as part of their degree . The Biology Program also will save resources by eliminating one 3-unit lecture. Other USD programs will need to review the syllabi of the new courses to determine which of these courses will be useful in their curriculum. It is likely that programs such as Biochemistry and Biophysics and Marine Science will choose one of the courses (240 or 242) to replace their requirement for Bio 225 or 221, leaving no net impact. Programs like Behavioral Neurosciences will benefit from the reduction from three to two semesters of general biology, as they currently require all three semesters of introductory biology.

Will this change have any staffing/budgetary impact?

Yes

Provide a brief explanation (include commentary on personnel, facilities, library holdings and academic computing)

As mentioned above, eliminating a three-unit lecture that has been required of Biology majors and minors, Pre-health students, and as preparation for other science majors, will free up personnel resources in the Biology department. Hopefully, these savings will translate into a slightly lower reliance on adjunct faculty, who do the bulk of the teaching at the lower division. There will be no net impact on facilities (other than freeing up lecture rooms across campus), library holdings, or academic computing.

Will this change impact student enrollment numbers?

Yes

In what courses and in what ways?

The changes to the lower division requirements in Biology will free up three elective units for Biology Majors, Minors, and Pre-health students. This may create a minor ripple of enrollment increases across the College.

Course Reviewer Comments

Key: 2692

BIOLOGY 242L – Genomes and Evolution Laboratory

Day: **Time:**
Room
Instructor:
Course Website-Blackboard (ole.sandiego.edu)

Course Philosophy

In Biology 242L, students will be studying the flow of information, from the inception of variation onward through the branches of the phylogeny of life. Students will also be introduced to the scientific method as they pursue questions of evolutionary process and pattern, including integration of both laboratory and field experimental/observational approaches and analyses. Comprehension of the concepts will stem from your readings and group discussions. Your ability to relay information will be assessed through oral (presentations, participation in group discussions) and written communication (assignments, reports and lab notebook).

Course Learning Outcomes

At the end of the semester a student should be able to:

1. *Design and conduct an experimental and/or observational investigation to generate scientific knowledge.*
2. *Analyze data using methods appropriate to the natural sciences in order to make valid and reliable interpretations.*
3. *Explain the basic scientific concepts and theories relevant to the area of study.*
4. *Identify and use appropriate and sufficient scientific evidence to evaluate claims and explanations about the natural world.*

Bio 242 Laboratory Schedule

Week 1: Scientific Method
--goals of the course, goals of science
--field or lab discussion and exercise to practice hypothesis formation

Module 1: Mutation and Adaptation

Week 2: practice microbiological techniques; introduction of module goals and model organism.

Week 3: prepare cultures; examine literature for context; hypothesis formation and experimental design

Week 4: prepare experimental treatments; start outline of research report

Week 5: assess experimental results, set up repeat trials; devise follow-up experiments

Week 6: assess experimental results; construct research report

Week 7: present research findings, written and as oral presentations

Module 2: The transition of life to land

Phylogenetic analysis project
Data acquisition and analysis

Week 8: Systematic theory and practice. (learn tree-thinking, ancestral vs. derived characteristics, parsimony, etc.). Phylogeny analysis exercise introduces use of Mesquite application; then group work coding characters, creating data matrix, and using parsimony to reconstruct phylogeny of Molluscs

Week 9: Animal colonization of land: morphological and life history evolution. (adding use of diagnostic keys, and relating them to phylogeny, adaptation, etc.). Arthropods will the model group for study.

Week 10: Plant colonization of land: morphological and life history evolution. (analyze existing phylogeny to learn about homology and character state evolution). Green algae, moss, fern, conifer, and flowering plant will be analyzed in a comparative approach to understand the form and function of plant adaptations to the dry, gravity-challenged terrestrial landscape.

Week 11: Adaptation and homology 1:
skeletal system of insect, fish, frog, and rat

Week 12: Adaptation and homology 2:
circulatory system of insect, fish, frog, and rat
--phylogenetic analysis presentations

Week 13: Adaptation and homology 3:
urogenital system of insect, fish, frog, and rat
--phylogenetic analysis presentations

Module 2 Phylogenetic Analysis Project:
A group of four students will choose a phylum of animals from Annelida, Platyhelminthes, Cnidaria, Nematoda, Echinodermata, or Chordata. Group will find phylogenetic literature (partially guided), obtain mtDNA sequences from Genbank, align and analyze the data to generate trees (using appropriate software) compare their hypothesis (=tree) with others found in literature (hopefully using other data sets, like morphology). Group will prepare a powerpoint introduction to the diversity within their group and a report on their analysis, and present this to the class during last two periods, along with an assignment they have made for the other students .

New Course Proposal

Date Submitted: 04/22/16 1:56 pm

Viewing: HNRS : Life and Moving Fluids

Last edit: 04/22/16 1:56 pm

Changes proposed by: jcprairie

In Workflow

1. **HONR Chair**
2. **AS Associate Dean**
3. Registrar

Approval Path

1. 09/08/16 3:53 pm
   James Gump (gump): Approved for HONR Chair

Contact Person(s)	Name:	E-mail:	Campus Phone:
	Jennifer Prairie	**jcprairie@sandiego.edu**	**8820**
	Frank Jacobitz	**jacobitz@sandiego.edu**	**7820**

Effective Term: Spring 2018

Subject Code: **HNRS** Course Level: **Undergraduate** Course Number

Department: **Honors** (**HONR**)

College: **College of Arts & Sciences**

Title of Course: **Life and Moving Fluids**

Catalog Title: **Life and Moving Fluids**

Credit Hours: **4**

Weekly Contact Hours: Lecture: **2** Lab: **2** Other:

Catalog Course Description: **This course examines the physical process of fluid motion in the atmosphere and ocean and their impact on life in these environments. The approach taken in this course is an interdisciplinary one: physical processes are introduced, discussed, and directly related to their biological impacts. This course counts as an upper-division elective for majors in Environmental and Ocean Sciences, Mechanical Engineering, Physics, or Biology.**

Primary Grading Mode: **Standard Grading System- Final**

Method(s) of delivery *(Check all that apply)*: **Lecture/Lab**

Faculty Course Workload: **Other**

Please specify: **honors team-taught course: 3 units per instructor**

Is this course cross-listed?

Yes

With which course(s)?

Prerequisites?

For MENG/PHYS students: MENG 360 or PHYS 314 or PHYS 324 and one life science course
For EOSC/BIOL students: EOSC 301W or BIOL 305 and MATH 150

Does this course have concurrent Prerequisites?

No

Are there 1 or more Co-Requisites?

No

Is this course a topics course?

No

Is this course repeatable for credit?

No

Does this meet any of the following Undergraduate Core Curriculum Requirements?

Course attributes

Honors

This Course Change/Course Proposal will be sent to the Dept Chairs for the Majors/Minors/Concentrations selected below:
This Course can apply to the following Majors/Minors/Concentrations:

Majors/Minors/Concentrations:
Marine Science-- MARS
Mechanical Engineering-- MENG
Biology-- BIOL
Physics-- PHYS

Department Restrictions:

Major Restrictions:

Class Restrictions:

Level Restrictions:

Degree Restrictions:

Program Restrictions:

Campus Restrictions:

College Restrictions:

Student Attribute Restrictions:

Enter the vote of the Department on this course:

Yes: **9** No: **0** Abstain: **0**

Rationale: Team-taught honors course to be taught in Spring 2018 between Jennifer Prairie (Environmental and Ocean Sciences) and Frank Jacobitz (Mechanical Engineering). This will provide an upper-division elective that will count for any of the following majors: Environmental and Ocean Sciences, Mechanical Engineering, Biology, or Physics/Biophysics. Besides that, it will not affect the curriculum in any of these departments.

Supporting documents: **Life_and_Moving_Fluids_Syllabus.pdf**

Impact

Discuss the likely effects on both department curriculum and curricula of other departments/units

No effect on department curriculum or curricula of other departments/units.

Will this change have any staffing/budgetary impact?

No

Will this change impact student enrollment numbers?

No

Course Reviewer Comments

Key: 2520

Life and Moving Fluids

HNRS xxx - Spring 2018

Instructors:

Dr. Frank Jacobitz (MENG)
Office: LH 325
Email: jacobitz@sandiego.edu

Dr. Jennifer Prairie (EOSC)
Office: SCST 269
Email: jcprairie@sandiego.edu

Office Hours: TBA

Texts: Some potential texts for this course include:

- *Physical Fluid Dynamics,* by D. J. Tritton
- *Environmental Fluid Mechanics,* by Benoit Cushman-Roisin
- *Life in Moving Fluids: The Physical Biology of Flow,* by Steven Vogel
- *Air and Water,* by Mark Denny
- http://www.amazon.com/Ocean-Circulation-Edition-Angela-Colling/dp/0750652780

Supplemental readings including scientific articles will be provided on Blackboard.

Course Description:

This course examines the physical processes of fluid motion in the atmosphere and oceans and their impact on life in these environments. The course starts with a review of the fundamentals of fluid mechanics and biology. The equations of fluid motion are discussed with a focus on the non-dimensional parameters governing environmental flows. Physical flow processes covered include turbulence, stratification, rotation, and wave motion. Biological applications studied in some detail are life at low Reynolds numbers, interactions between morphology of organisms and the fluid dynamic environment, and the effects of fluid dynamics on the distributions of organisms. Students will learn concepts through a combination of lecture, computer-based activities, and lab and field experiments. The approach taken in the course is an interdisciplinary one: physical processes are introduced, discussed, and directly related to their biological impacts. The course targets a balanced student enrollment from engineering and physics students with a strong background in mathematics and the physical sciences, as well as from environmental and ocean sciences and biology students with a strong background in the life sciences. The two student groups will engage in peer teaching activities throughout the first half of the course and eventually form interdisciplinary groups for team project assignments in the second half of the semester. This course will count as an upper-division elective for majors in Mechanical Engineering, Environmental and Ocean Sciences, Physics, or Biology.

Learning Outcomes:
By the end of the course, you will be able to:

1. Demonstrate an understanding of major fluid dynamics concepts both physically and mathematically
2. Apply concepts from fluid dynamics to different environmental and ecological problems
3. Identify and explain examples of fluid dynamics for organisms in the ocean and other habitats
4. Solve basic fluid mechanics problems and explain the impact of stratification, turbulence, and waves on organisms living in fluid environments
5. Collaborate in an interdisciplinary team to incorporate ideas from different fields as they relate to a problem in environmental fluid dynamics

Our Expectations for You:

- Attend all class meetings.
- Participate in discussions and in-class activities.
- Complete the homework and other assignments on time.
- Prepare for and complete the quizzes.
- Complete the peer teaching and team project assignments.
- Be open to interdisciplinary learning and collaborating with students outside of your field of expertise.

Course Grade: Your final course grade will be out of 500 points, and will be determined by quizzes, assignments, a final project, pre-topic mentoring and evaluations, and participation and in-class exercises.
Points breakdown for each are shown below:

Course Grade:		
Quizzes	(5 @20 points each)	100 points
Assignments		150 points
Final Project (Team-Based)		150 points
Pre-Topic Paired Mentoring and Evaluations		50 points
Participation and In-Class Exercises		50 points
Total		**500 points**

Each component of the course grade is described in further detail below.

Tentative Course Schedule:
For each topic, students will be introduced first to the mathematical/physical concepts underlying the fluid dynamics. Then students will be introduced to environmental or ecological applications of the topic.

	Topic
Week 1	Introduction to environmental fluid dynamics Fundamental physical and biological principles that relate to environmental fluid dynamics
Week 2	Equations of motion, non-dimensionalization, and non-dimensional numbers, with a focus on the Reynolds number
Week 3	Introduction to life in the ocean *Life at low Reynolds numbers*
Week 4	Turbulence: Reynolds decomposition and mixing length models *Hydromechanical sensing by organisms*
Week 5	Turbulence: Scaling and spectral theory *Effects of turbulence on distributions of organisms*
Week 6	Internal flows: pipes and channels *Flow in the circulatory system*
Week 7	External flows: boundary layers *Boundary layers at seafloor beds – effects on benthic ecosystems*
Week 8	External flows: boundary layers continued *Boundary layers around organisms*
Week 9	*Fluid dynamics of flight (with a focus on insects)* External flows: flow over airfoils
Week 10	*Shape of organisms and interactions with fluid flow* External flows: flow over bluff bodies; vortex dynamics
Week 11	Stratified Flow *Mixing by organisms in the ocean*
Week 12	*Upwelling and nutrient-limitation in the surface ocean* Rotational Flows and Ekman Transport
Week 13	Waves *Life in the Intertidal*
Week 14	Review and Interdisciplinary Project Presentations

Quizzes: In place of exams, short in-class quizzes will be given about every 2 weeks that covers the fluid dynamics concepts and their applications to environmental and ecological problems. There will be six quizzes in total throughout the semester, and the lowest quiz grade will be dropped.

Assignments: Assignments will include problem sets, laboratory assignments based on in-class experiments or field data, and computer-based assignments.

Final Project: Student will work in teams of 3-4 to complete a final project. Each team will include at least one student with an Engineering/Physics background and at least one student with an Environmental/Biology background. For the project, each team will choose a problem in Environmental Fluid Dynamics (not previously discussed in the course) and apply concepts from the course to address the problem. The team will then give an oral presentation explaining their project to the rest of the class.

Pre-topic Mentoring and Evaluations: A few times throughout the semester, students will review the fundamentals of mathematics and biology in preparation for upcoming topics in the course. Students will work in teams such that Engineering/Physics students will mentor Environmental/Biology students on concepts in mathematics and Environmental/Biology students will mentor Engineering/Physics students on concepts in biology. All students will then be evaluated on the concepts they reviewed.

Academic Integrity: It is expected that each student in this class conduct him or herself within the guidelines of the USD Honor Code (http://www.sandiego.edu/documents/conduct/HonorCode.pdf). All academic work should be done with the high level of honesty and integrity that this university demands. Guidelines for working with other students on specific assignments are described above, but if there is ever any confusion, please ask me.

Office Hours: Please do not hesitate to come to office hours if you are having any difficulty with the course material. If your schedule does not allow you to come to the set office hours, please email to set up alternate times to meet.

Students with Disabilities: Any students who will require special attention should contact me as soon as possible to make the appropriate arrangements.