The Graduate School

THE UNIVERSITY OF MAINE

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Orono, Maine 04469-5755
Tel: 207.581.3291
Fax: 207.581.3232
umaine.edu/graduate

CURRICULUM COMMITTEE REPORT

The Curriculum Committee met on May 12th and recommends the following courses to the Graduate Board for approval at its May 21st meeting.

New Courses:

BMS 630 Journal Club in Biomedical Science &Engineering
BMS 635 Current Approaches in Biomedical Science & Engineering
BMS 640 Experimental Methods in Cell & Molecular Biology
BMS 645 Cell Biology Tissue Development & Function
BMS 650 Grant Writing in Biomedical Science & Engineering
BMS 660 Cell, Molecular and Developmental Neurobiology
BMS 690 Special Topics in Biomedical Sciences

Modifications:

BMS 625 Introduction to Biomedical Sciences
FSN 524 Research Methods and Biostatistical Techniques
PSY 603 Ethics and Professional Problems

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM for Graduate Courses

GRADUATE PROGRAM/UNIT GSBSE

CURRENT COURSE DESIGNATOR BMS CURRENT COURSE NUMBER 625

EFFECTIVE SEMESTER Spring 2016

TITLE Introduction to Biomedical Sciences

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☐ New Course with Electronic Learning [1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☒ Designator Change
- ☐ Number Change
- ☒ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s)		
David Neivandt		David O. Neivandt
College(s) Curriculum Committee Chair(s) [if applicable]		
Robert Burgess		Robert Burgess — Digitally signed by Robert Burgess DN: cn=Robert Burgess, o, ou, email=robert.burgess@jax.org, c=US Date: 2015.03.10 09:36:42 -05'00'
College Dean(s)		
Carol Kim		
Dean and Associate Provost for Graduate Studies		

1. If a course involves significant electronic access for the primary delivery of its content (more than 50%), the course proposal should specify faculty training/experience in use of technology and how the electronic delivery will be managed. Please consult with the Office of Distance Education for more information.
2. Courses cross-listed below 400-level require the permission of the Dean and Associate Provost for Graduate Education.

SECTION 1 (FOR NEW COURSE PROPOSALS):

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music ☐ Clinical ☐ Field Experience/Internship ☐ Research ☐ Studio

☐ Laboratory ☐ Lecture/Seminar ☐ Recitation ☐ Independent Study ☐ Thesis

Text(s) planned for use:

Course Instructor (include name, position, teaching load):

Reason for new course:

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

○ No. The department will not request additional resources for this course.

○ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

BMS 625 Introduction to Biomedical Sciences
Prerequisites: None
Credits: 1-4

Course provides an overview of fundamental/critical issues in biomedical sciences today.

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

BMS 625 Foundations of Biomedical Science & Engineering
Prerequisites: None
Credits: 1-4

Course provides an overview of fundamental/critical issues in biomedical science and engineering today.

Reason for course modification:

To change the title to better clarify the course content, which reflects the recent change of the name of the school from Biomedical Sciences to Biomedical Science and Engineering.

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM
for Graduate Courses

GRADUATE PROGRAM/UNIT GSBSE

CURRENT COURSE DESIGNATOR BMS CURRENT COURSE NUMBER 630

EFFECTIVE SEMESTER Spring 2016

TITLE Journal Club in Biomedical Science and Engineering

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☒ New Course with Electronic Learning [1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s)		
David Neivandt		
College(s) Curriculum Committee Chair(s) [if applicable]		Robert Burgess Digitally signed by Robert Burgess DN: cn=Robert Burgess, o, ou, email=robert.burgess@jax.org, c=US Date: 2015.03.10 09:36:08 -05'00'
Robert Burgess		
College Dean(s)		
Carol Kim		
Dean and Associate Provost for Graduate Studies		

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SECTION 1 (FOR NEW COURSE PROPOSALS):

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

BMS 630 Journal Club in Biomedical Science and Engineering
Prerequisites: None
Credits: 1-3

Reading, critiquing, and discussion of primary literature

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music ☐ Clinical ☐ Field Experience/Internship ☐ Research ☐ Studio
☐ Laboratory ☒ Lecture/Seminar ☐ Recitation ☐ Independent Study ☐ Thesis

Text(s) planned for use:

None

Course Instructor (include name, position, teaching load):

Various GSBSE Faculty

Reason for new course:

This course has been taught via video-conference since the inception of the GSBSE as BMS 690 Special Topics. It is offered every year and needs it own course designation.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

◉ No. The department will not request additional resources for this course.

○ Yes. Please list additional resources required and note how they will be funded or supported.

This course is video-conferenced to multiple sites. GSBSE Faculty are familiar with this technology and setup is managed by the Executive Assistant in conjunction with IT and administrative personnel at all sites.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

This course is currently being taught and will continue to be offered, no additional resources are required, just adding the course with its own designation.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

Every semester. No overload salary payments will be required.

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Reason for course modification:

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

Course Description and Syllabus

Course Information

BMS 630 Journal Club

Course description: Reading, critiquing, and discussion of primary literature related to a biological question.

Number of credit hours: 2

Prerequisites (previous courses, knowledge, and skills): none

General Education requirements satisfied (if applicable): none

Faculty Information

Name: GSBSE Faculty

Phone, fax numbers: varies

E-mail address: varies

Instructional Materials and Methods

Textbook title(s) and other required course materials: varies

List of references and reserve materials: varies

Student Learning Outcomes

Course Goals: Learn to read and critique scientific journal articles

Instructional Objectives:

- Students will critically read scientific journal articles
- Students write critiques of scientific journal articles
- Students verbally critique scientific journal articles

Student Learning Outcomes: Given a particular article, students will be able to write a valid critique and discuss in class the hypothesis, experimental models and design, data interpretation and conclusions.

Grading and Course Expectations

Your grading criteria: Grading is a 50% on written assignments and 50% class participation.

Grading Scale:

93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
63-66%	D
60-62%	D-
59% and below	F

Tentative exam schedule:

Your Policies: varies by instructor

Course Schedule: varies by instructor

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Academic Honesty Statement: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

Students with disabilities statement: If you have a disability for which you may be requesting an accommodation, please contact Ann Smith, Director of Disabilities Services, 121 East Annex, 581-2319, as early as possible in the term.

Sexual Discrimination Reporting
The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

> **If you want to talk in confidence** to someone about an experience of sexual discrimination, please contact these resources:
>
> For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Cutler Health Center: at 207-581-4000**. For *confidential resources off campus*: **Rape Response Services:** 1-800-310-0000 or **Spruce Run**: 1-800-863-9909.
>
> **Other resources:** The resources listed below can offer support but may have to report the incident to others who can help:
>
> For *support services on campus*: **Office of Sexual Assault & Violence Prevention: 207-581-1406**, **Office of Community Standards: 207-581-1409**, **University of Maine Police: 207-581-4040 or 911**. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM
for Graduate Courses

GRADUATE PROGRAM/UNIT GSBSE

CURRENT COURSE DESIGNATOR BMS CURRENT COURSE NUMBER 635

EFFECTIVE SEMESTER Spring 2016

TITLE Current Approaches in Biomedical Science & Engineering

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☒ New Course with Electronic Learning[1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s)		
David Neivandt		
College(s) Curriculum Committee Chair(s) [if applicable]		Robert Burgess
Robert Burgess		Digitally signed by Robert Burgess DN: cn=Robert Burgess, o, ou, email=robert.burgess@jax.org, c=US Date: 2015.03.10 09:35:29 -05'00'
College Dean(s)		
Carol Kim		
Dean and Associate Provost for Graduate Studies		

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SECTION 1 (FOR NEW COURSE PROPOSALS):

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

BMS 635 Current Approaches in Biomedical Science & Engineering
Prerequisites: BMS 625
Credits: 1-3

Current Techniques, methods, and concepts in Biomedical Science & Engineering topics.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music ☐ Clinical ☐ Field Experience/Internship ☐ Research ☐ Studio
☐ Laboratory ☒ Lecture/Seminar ☐ Recitation ☐ Independent Study ☐ Thesis

Text(s) planned for use:

None

Course Instructor (include name, position, teaching load):

Various GSBSE Faculty

Reason for new course:

This course has been taught via video-conference as BMS 690 Special Topics. We would like to offer it with its own course designation.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

◉ No. The department will not request additional resources for this course.

○ Yes. Please list additional resources required and note how they will be funded or supported.

This course is video-conferenced to multiple sites. GSBSE Faculty are familiar with this technology and setup is managed by the Executive Assistant in conjunction with IT and administrative personnel at all sites.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

This course is currently being taught and will continue to be offered, no additional resources are required, just adding the course with its own designation.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

Every Spring with various topics. No overload salary payments will be required.

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Reason for course modification:

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

Course Description and Syllabus
Generic, see following sample syllabi

Course Information

BMS 635 Current Approaches in Biomedical Science & Engineering

Course description: Current Techniques, methods, and concepts in Biomedical Science & Engineering topics.

Number of credit hours: 1-3

Prerequisites (previous courses, knowledge, and skills): BMS 625

General Education requirements satisfied (if applicable): none

Faculty Information

Name: Various GSBSE Faculty

Instructional Materials and Methods

Textbook title(s) and other required course materials: varies

List of references and reserve materials: varies

Student Learning Outcomes

Course Goals: varies

Instructional Objectives: varies

Student Learning Outcomes: varies

Grading and Course Expectations

Your grading criteria: varies

Course Schedule:

Varies by topic

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

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For *support services on campus*: **Office of Sexual Assault & Violence Prevention: 207-581-1406**, **Office of Community Standards: 207-581-1409**, **University of Maine Police: 207-581-4040 or 911**. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

Introduction to Biostatistics Module
BMS690 Special Topics in Biomedical Sciences section 5001
Fall 2014, 1 credit
Class # 92495

Course Coordinator:
Christine Duarte, Ph.D. (duartc@mmc.org)

Meeting time: Tuesdays and Thursdays 1 – 3 pm
Location: Maine Medical Center Research Institute, conference room 5
Videoconference: 126 Barrows Hall, UMaine, other sites in progress

Pre-requisite: none

Description: Introduction to theory and methods in statistical analysis with application to the biomedical sciences.

Format: The course will be a combination of lectures and data analysis exercises. Data analysis will be conducted in Excel and R.

Grading: The following will be evaluated for your final course grade: discussion (25%) and grading of a final data analysis report (75%). Note: we understand the video-conferencing format has its limitations, especially for those of you at remote sites. We will elicit responses as much as we can, but the responsibility for participation is yours.

Grading Scale:

93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
63-66%	D
60-62%	D-
59% and below	F

Faculty: This course will be primarily taught by Christine Duarte at MMCRI and broadcast through the videoconferencing facilities between MMCRI and UMaine Orono.

Readings: Power point slides and course notes will be provided for this course. There is no required textbook for the course. Students will be required to have access to Microsoft Excel and to the R programming language (available for free download at http://www.r-project.org/) for the completion of assigned homework.

Student Learning Outcomes

Course Goals:
The goal of this course is for students to understand and apply the principles of statistics to appropriately design research studies, analyze the collected data, draw appropriate conclusions, and test assumptions. Students will learn basic modeling techniques such as linear regression, analysis of variance (ANOVA), basic categorical data analysis. Students will be introduced to a sampling of advanced techniques and

topics such as missing data, multiple testing, survival analysis, and nonparametric methods. The goal of the course is for students to have a broad understanding of good research design as well as understand some of the basic statistical methods available for the analysis of different types of data sets.

Instructional Objectives:

- Students will learn how to import, export, and manipulate data in R and Excel.
- Students will be able to perform standard statistical analysis methods on a sample data set (including linear regression, analysis of variance (ANOVA), and basic categorical data analysis).
- Students will be able to evaluate the results of statistical methods and draw appropriate conclusions after testing assumptions.
- Students will know how to choose which statistical method to apply to which type of research design and variable types.
- Students will learn how to formulate and evaluate hypothesis tests and how to interpret confidence intervals for estimated parameters.
- Students will have a basic understanding of advanced topics such as missing data techniques, multiple testing, survival analysis, and nonparametric methods.
- Students will learn to present in written form the design and analysis of a research study with appropriate use of summary and descriptive statistics, tables and figures with appropriate legends, and a discussion of statistical methods used, assumptions tested, and a concise interpretation of results.

Student Learning Outcomes:

- Students will be able to design and analyze the results of a research study by formulating a hypothesis, selecting a design that tests that hypothesis, selecting and measuring all necessary explanatory and outcome variables, selecting a sample size that gives sufficient power to reject the null hypothesis, selecting a statistical method which is appropriate for the study design and variable types, analyzing the data and drawing appropriate conclusions, testing assumptions, and presenting tables, figures, and graphs that efficiently convey the results.

Course Syllabus, Fall 2014

Date	Topic
Tues 9/2	Introduction to Statistics: sampling theory, distributions, summary statistics, types of variables, hypothesis testing, confidence intervals
Thurs 9/4	Introduction to the R language, using Excel and R for basic statistical analysis, summary of graphing capabilities
Tues 9/9	Regression and Correlation
Thurs 9/11	Categorical data analysis and logistic regression
Tues 9/16	T-tests and ANOVA
Thurs 9/18	Study design and power analysis
Tues 9/23	Advanced topics: survival analysis, nonparametric methods, ANCOVA and MANOVA, missing data, multiple testing

Course Description and Syllabus

Course Information

Course designator, number, and full title
A) BMS 635 Current Approaches – Mouse Genome Modification Module
B) BMS 635 Current Approaches – Advanced Mouse Genome Modification Module

Course description:
A) This module is designed to give an overview of using the mouse to develop transgenic models of gene expression and gene targeting. Students will discuss basic transgenic and gene targeting construct design, methods to generate transgenic mice by microinjection methods, and conditional and inducible systems. The goal is to provide a general understanding of strategies for developing and characterizing a mouse model of human disease or gene function. This is a pre-requisite for the advanced module.

B) The advanced module covers more advanced strategies of mouse genome modification, including zinc finger nucleases, TALENs, and CRISPR/Cas system. Students will read primary literature relating to the development and characterization of these techniques, and focus on practical applications of the CRISPR/Cas system.

Number of credit hours: 1 credit for each module

Prerequisites (previous courses, knowledge, and skills): It is recommended that students have a strong grasp of mouse genetics and use as an experimental model, for example, having taken the UMaine Mouse Genetics Module. The Mouse Genome Modification Module is a pre-requisite for the Advanced Module.

General Education requirements satisfied (if applicable): n/a

URL for Syllabus/Course (if available and if you choose to make it available): n/a

Faculty Information

Name: Lucy Liaw, Ph.D.

Phone, fax numbers: tel 207-396-8142

E-mail address: liawl@mmc.org

Where students may leave physical messages/assignments for you: All messages and assignments can be delivered by email or via the GSBSE Discussion Board. I am located at Maine Medical Center Research Institute, 81 Research Drive, Scarborough, ME 04074

Your office hours: Available upon request.

Instructional Materials and Methods

Textbook title(s) and other required course materials: All course materials will be provided to the students and will include primary scientific literature.

List of references and reserve materials: n/a

If non-traditional teaching methods are used, please describe: This course will be videoconferenced to up to two sites in addition to the physical location at Maine Medical Center. This course will also utilize the GSBSE Discussion Board for student communication and posting of presentation materials.

Student Learning Outcomes

Course Goals: The goal of the combined modules is to lead to understanding of genome modification in the mouse, including transgenic mice, gene targeting, and genome modification using CRISPR/Cas and other

methodologies. It will also allow participants to successfully read, understand, and critique scientific literature related to mouse models.

Instructional Objectives: Students will be able to understand mouse models described in the scientific literature, and design a research strategy involving mouse genome modification. Students will be able to apply this research strategy to their own research projects.

Student Learning Outcomes: Students will be able to define a research project where a mouse model would be useful, and design a strategy using genome modification to develop that mouse model.

Grading and Course Expectations

Your grading criteria: Students are expected to participate in class discussions of scientific literature, and participation is one component of grading. Most of the weight of grading comes from the student's development and presentation of an animal model. This involves a written research strategy and an oral presentation of the project during class.

Components of final course grade and relative contribution of each to final grade: The final grade is based on the grade of the oral presentation and written experimental strategy. Cumulative course participation will be factored into the grade.

Grading Scale:

93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
63-66%	D
60-62%	D-
59% and below	F

Expectations for student engagement "beyond" the classroom wall (if applicable): completion of written and oral assignments

Any "hidden" factors, such as active participation, etc.: active participation described above

Tentative exam schedule: n/a

Your Policies:

- Attendance and class participation: Students are expected to attend each class and participate fully
- Late assignments, make-up, retake and reschedule exams; and extra credit: There will be no make ups or extra credit. If there is a conflict that requires a student to miss class, that should be communicated directly to the instructor as soon as possible.
- Incomplete work: Students will be graded on the quality of their work at the time of receipt; students may apply for approval for an incomplete (i) in extenuating circumstances and discuss a plan for course completion with the instructor.

Course Schedule for Spring 2015:

Mouse Genome Modification Module

Tues 3/17	Designing transgenic constructs and gene targeting constructs
Thurs 3/19	Conditional systems – recombinases
Tues 3/24	Inducible systems
Thurs 3/26	Mouse early embryonic development and technical procedure – pronuclear injection
Tues 3/31	Homologous recombination in embryonic stem cells – blastocyst injection, KOMP
Thurs 4/02	Paper discussion
Tues 4/07	Paper discussion
Tues 4/09	Final student presentations

Advanced Mouse Genome Modification Module

Tues 4/14	Overview of nuclease-related genome modification tools (paper assignment)
Thurs 4/16	Zinc finger nucleases (paper assignment)
Tues 4/21	TALENs (paper assignment)
Thurs 4/23	CRISPR/Cas (paper assignment)
Tues 4/28	CRISPR/Cas technical overview
Thurs 4/30	Student presentations

Final date for all work to be in, unless other arrangements have been made with instructor:

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> Other resources: The resources listed below can offer support but may have to report the incident to others who can help:
>
> For *support services on campus*: Office of Sexual Assault & Violence Prevention: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM for Graduate Courses

GRADUATE PROGRAM/UNIT GSBSE

CURRENT COURSE DESIGNATOR BMS CURRENT COURSE NUMBER 640

EFFECTIVE SEMESTER Spring 2016

TITLE Experimental Methods in Cell & Molecular Biology

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☒ New Course with Electronic Learning [1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s)		
David Neivandt		
College(s) Curriculum Committee Chair(s) [if applicable]		
Robert Burgess		Robert Burgess Digitally signed by Robert Burgess DN: cn=Robert Burgess, o, ou, email=robert.burgess@jax.org, c=US Date: 2015.03.10 09:34:35 -05'00'
College Dean(s)		
Carol Kim		
Dean and Associate Provost for Graduate Studies		

1. If a course involves significant electronic access for the primary delivery of its content (more than 50%), the course proposal should specify faculty training/experience in use of technology and how the electronic delivery will be managed. Please consult with the Office of Distance Education for more information.
2. Courses cross-listed below 400-level require the permission of the Dean and Associate Provost for Graduate Education.

SECTION 1 (FOR NEW COURSE PROPOSALS):

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

BMS 640 Experimental Methods in Cell & Molecular Biology
Prerequisites: None
Credits: 3

Focuses on a wide range of common techniques used in cell and molecular biology. Students will be expected to understand principals, assays, methods, and interpretation of data generated using these techniques.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music	☐ Clinical	☐ Field Experience/Internship	☐ Research	☐ Studio
☐ Laboratory	☒ Lecture/Seminar	☐ Recitation	☐ Independent Study	☐ Thesis

Text(s) planned for use:

None

Course Instructor (include name, position, teaching load):

Various GSBSE Faculty

Reason for new course:

This course has been taught via video-conference for years as BMS 690 Special Topics. It is offered every year and needs it own course designation.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

◉ No. The department will not request additional resources for this course.

○ Yes. Please list additional resources required and note how they will be funded or supported.

This course is video-conferenced to multiple sites. GSBSE Faculty are familiar with this technology and setup is managed by the Executive Assistant in conjunction with IT and administrative personnel at all sites.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

This course is currently being taught and will continue to be offered, no additional resources are required, just adding the course with its own designation.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

Every Fall. No overload salary payments will be required.

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Reason for course modification:

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

Course Description and Syllabus

Course Information

BMS 640 Experimental Methods in Cell and Molecular Biology

Course description: This course will focus on a wide range of common techniques used in cell and molecular biology.

Number of credit hours: 3

Prerequisites (previous courses, knowledge, and skills): none

General Education requirements satisfied (if applicable): none

Faculty Information

Name: Lucy Liaw, PhD and Calvin Vary, PhD, with other participating faculty

Course Coordinators:
Lucy Liaw, Ph.D., MMCRI, liawl@mmc.org
Calvin Vary, Ph.D., MMCRI, varyc@mmc.org
Office hours by request

Other Participating Faculty:
Pradeep Sathyanarayana, Ph.D., MMCRI, sathyp@mmc.org
Leif Oxburgh, Ph.D., D.V.M., MMCRI, oxburl@mmc.org
Igor Prudovsky, Ph.D., MMCRI, prudoi@mmc.org
Volkhard Lindner, M.D., Ph.D., MMCRI, lindnv@mmc.org

Instructional Materials and Methods

Textbook title(s) and other required course materials: various published data from literature

List of references and reserve materials: none

Student Learning Outcomes

Course Goals: Students will be exposed to and understand common

techniques used in cell and molecular biology.

Instructional Objectives: Students will complete problem sets in cell and molecular biology with techniques covered in the course. Students will read, present, and discuss published data in cell and molecular biology.

Student Learning Outcomes: Students will be able to understand principals, assays, methods, and interpretation of data generated using these technique

Grading and Course Expectations

Grading is based on student-led presentations (25%) and discussion of weekly topics (25%), including analysis of published data from the literature. In addition, students will complete short problem sets during the semester. There will be a final written assignment to test the students' mastery of the principles covered during the semester (50%).

Grading Scale:

93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
63-66%	D
60-62%	D-
59% and below	F

Course Schedule:

Class date	Topic
Sept. 2	Orientation, Scientific Method and Lab Fundamentals of experimental design, review of solutions, dilutions, and pH Complete problem set 1 this week
Sept. 4	Writing and reviewing materials and methods in a manuscript
Sept. 9	DNA methods I (DNA extraction, gels and restriction enzymes and mapping, Southern blots, sequencing, next

	gen) Complete problem 2 set this week
Sept. 11	DNA methods data analysis
Sept. 16	DNA methods II (Primer design, DNA polymerases, real time quantitative PCR, cDNA methods, nucleotide BLAST)
Sept. 18	DNA methods data analysis
Sept. 23	DNA methods III (Bacterial transformation and plasmid purification, vectors for recombinant protein production, vectors for eukaryotic gene expression, viral expression vectors, DNA cloning
Sept. 25	DNA methods data analysis
Sept. 30	RNA methods (Total RNA extraction, polyA RNA purification, Northern blot analysis) Complete problem set 3 this week
Oct. 2	RNA methods data analysis
Oct. 7	RNA methods II (siRNA, shRNA, microRNAs, RNA-seq)
Oct. 9	RNA methods data analysis
Oct. 14	No class – UMaine fall break
Oct. 16	Gene regulation and expression methods (RNase protection assay, promoter reporter assay, gene chip microarray)
Oct. 21	RNA methods data analysis
Oct. 23	Cell cycle analysis (flow cytometry, measurement of DNA synthesis, senescence, and apoptosis)
Oct. 28	Cell cycle data analysis
Oct. 30	Protein methods I (Protein extraction, SDS-PAGE, antibodies, western blotting, immunoprecipitation) Complete problem set 4 this week
Nov. 4	Protein methods analysis
Nov. 6	Proteins methods II (translational assays, posttranslational modification, subcellular protein trafficking, secretion)
Nov. 11	Protein methods analysis
Nov. 13	Protein methods III (immunofluorescence/confocal microscopy, mass spec, proteomics)
Nov. 18	Protein methods analysis
Nov. 25	Cell signaling pathway methods (ligand-receptor interactions, detecting activation of receptors, detecting activation of signaling pathways)
Nov. 27	No class – Thanksgiving break
Dec. 2	Cell signaling data analysis
Dec. 2	DNA-protein interaction methods (EMSA, ChIP, DNA reporter assays) Complete problem set 5 this week
Dec. 4	DNA-protein data analysis

Dec. 9	Tissue culture methods (normal and transformed cell characteristics, tissue culture, gene delivery – lentivirus, adenovirus, retrovirus, and plasmid transfection)
Dec. 11	Cell culture data analysis
Finals week (Dec. 15-19)	

Final date for all work to be in, unless other arrangements have been made with instructor:

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Academic Honesty Statement: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

Students with disabilities statement: If you have a disability for which you may be requesting an accommodation, please contact Ann Smith, Director of Disabilities Services, 121 East Annex, 581-2319, as early as possible in the term.

Sexual Discrimination Reporting
The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to**

report this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Cutler Health Center: at 207-581-4000**. For *confidential resources off campus*: **Rape Response Services:** 1-800-310-0000 or **Spruce Run**: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: **Office of Sexual Assault & Violence Prevention: 207-581-1406**, **Office of Community Standards: 207-581-1409**, **University of Maine Police: 207-581-4040 or 911**. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM
for Graduate Courses

GRADUATE PROGRAM/UNIT GSBSE

CURRENT COURSE DESIGNATOR BMS CURRENT COURSE NUMBER 645

EFFECTIVE SEMESTER Spring 2016

TITLE Cell Biology Tissue Development & Function

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☒ New Course with Electronic Learning[1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s)		
David Neivandt		
College(s) Curriculum Committee Chair(s) [if applicable]		Robert Burgess Digitally signed by Robert Burgess DN: cn=Robert Burgess, o, ou, email=robert.burgess@jax.org, c=US Date: 2015.03.10 09:33:51 -05'00'
Robert Burgess		
College Dean(s)		
Carol Kim		
Dean and Associate Provost for Graduate Studies		

1. If a course involves significant electronic access for the primary delivery of its content (more than 50%), the course proposal should specify faculty training/experience in use of technology and how the electronic delivery will be managed. Please consult with the Office of Distance Education for more information.
2. Courses cross-listed below 400-level require the permission of the Dean and Associate Provost for Graduate Education.

SECTION 1 (FOR NEW COURSE PROPOSALS):

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

BMS 645 Cell Biology Tissue Development & Function
Prerequisites: BMS 640 Experimental Methods in Cell & Molecular Biology
Credits: 3

Cellular biology of tissue development in the context of receptor signaling, cell-cell interactions, and tissue function, including major receptor-mediated signaling pathways and how these pathways integrate to control tissue development and function.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music	☐ Clinical	☐ Field Experience/Internship	☐ Research	☐ Studio
☐ Laboratory	☒ Lecture/Seminar	☐ Recitation	☐ Independent Study	☐ Thesis

Text(s) planned for use:

None

Course Instructor (include name, position, teaching load):

Various GSBSE Faculty

Reason for new course:

This course has been taught via video-conference in the Spring as BMS 690 Special Topics. It is offered every year and needs it own course designation.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

◉ No. The department will not request additional resources for this course.

○ Yes. Please list additional resources required and note how they will be funded or supported.

This course is video-conferenced to multiple sites. GSBSE Faculty are familiar with this technology and setup is managed by the Executive Assistant in conjunction with IT and administrative personnel at all sites.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

This course is currently being taught and will continue to be offered, no additional resources, just adding the course with its own designation.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

Every semester. No overload salary payments will be required

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Reason for course modification:

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

Course Description and Syllabus

Course Information

BMS 645 Cell Biology of Tissue Development and Function

Course description: This course addresses the cellular biology of tissue development in the context of receptor signaling, cell---cell interactions, and tissue function.

Number of credit hours: 3

Prerequisites (previous courses, knowledge, and skills): BMS 640 Experimental Methods in Cell and Molecular Biology

General Education requirements satisfied (if applicable): none

Faculty Information

Name: Lucy Liaw, Ph.D. (liawl@mmc.org)
Calvin Vary, Ph.D. (varyc@mmc.org)

Instructional Materials and Methods

Textbook title(s) and other required course materials:
Background readings for this course will be primarily recent review articles that will be posted. There is no required textbook for the course, but any of the texts listed below would be useful background or support material.

- Cell Biology, Pollard and Earnshaw. Updated 1st Edition, 2004
- Molecular Biology of the Cell, Alberts, Johnsons, Lewis, Raff, Roberts, and Walter. 4th Edition, 2007
- Molecular Cell Biology, Lodish, Berk, Zipursky, Matsudaira, Baltimore, and Darnell. 4th Edition, 2000

Student Learning Outcomes

Course Goals: Students will learn the major receptor-mediated signaling pathways and how these pathways integrate to control tissue development and function.

Instructional Objectives: Students will be able to critically read, understand, and discuss primary research papers on signaling pathways.

Student Learning Outcomes: Given a research paper, students will read and successfully critique in writing and in class. In addition the students will develop written analysis of given tasks.

Grading and Course Expectations

Your grading criteria:
The following will be evaluated for your final course grade: paper, written critiques, and discussion. In addition, there will be two exams; midterm and final, as well as the weekly assignments. There are 5 paper critiques, and each is worth 10% of your final grade. Remember that your grade for each paper critique is the combination of your written work AND your participation in class discussion. We understand that the video---conferencing format has its limitations, especially for those of you at remote sites. We will elicit responses as much as we can, but the responsibility for participation is yours. The midterm exam and the final exam are each worth 25% of your grade. The weekly assignments will not receive a grade per se, but will be viewed collectively and have the potential to adjust your grade up or down if you are on the border between two grades, so take the assignments seriously. Assignments are also to help you gauge where you may need some extra work or self study.

Grading Scale:

93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
63-66%	D
60-62%	D-
59% and below	F

Assignment Sheet

Assignments are very short written objectives that direct your studying efforts on a weekly basis. They are expected to be very concise,

perhaps a half page description and a diagram if appropriate. Assignments are due on Friday at noon of each class week, and will be used to help gauge your progress in class. These will not be graded individually, but will be used at the end of the semester collectively, along with your participation in class discussion, to help evaluate your overall performance.

Assignments must be submitted to Lucy Liaw (liawl@mmc.org) and Cal Vary (varyc@mmc.org) via email by noon of Friday of the indicated week.

- Week of January 13: Make a small capsule describing one category of transcription factors (your choice), providing 1---2 examples of specific proteins in the family and their targets. Examples: basic helix---loop--- helix transcription factors, ets transcription factors, winged---helix/forkhead transcription factors, Hox transcription factors, etc.

- Week of January 20: Use a real data set (from your research or if you need one, we will provide one) to perform appropriate statistical test, i.e. t test, ANOVA chi squared test. Justify your choice of statistical analysis method. Perform a power analysis with the data.

- Week of January 27: Choose a posttranslational modification that occurs on a protein (for example, glycosylation, phosphorylation, ubiquitylation, acetylation) and outline a short strategy to test whether or not a protein of interest contains that modification.

- Week of February 3: Written critique due on Thursday before class – 2 page limit

- Week of February 10: Choose any protein coding gene of your interest, and do a search to predict if it is regulated by any microRNAs (for example using miRDB). If you have a long list of potential candidate regulators, identify 1---2 criteria that would help you narrow down this list.

- Week of February 17: Written critique due on Thursday before class – 2 page limit

- Week of February 24: Midterm examinations due by Friday at noon

- Week of March 3: Spring Break
- Week of March 10: Spring Break
- Week of March 17: Choose a tissue/organ of interest, and identify one living model organism to study the embryonic development of this tissue. Make a list of pros and cons in using this model system to study development of your tissue/organ.
- Week of March 24: Written critique due on Thursday before class – 2 page limit
- Week of March 31: Choose any cell type and find a good representative picture from the literature that demonstrates the expression of one or more of its differentiation markers. Provide a list of markers that you would use to identify that differentiated cell type.
- Week of April 7: Choose a different cell type, and repeat the assignment from last week. Week of April 14: Written critique due on Tuesday before class – 2 page limit
- Week of April 21: Describe the Hayflick limit and a strategy to immortalize cells in vitro
- Week of April 28: Written critique due on Tuesday before class – 2 page limit

Course Schedule:

Tues 1/14	overview of course, assignments, reading and reviewing papers, critique writing
Thurs 1/16	Using Excel to perform basic statistical analysis: T test, ANOVA, chi squared tests
Tues 1/21	Basic statistical methods 2 – Sample size and power analysis (demo of recommended
Thurs 1/23	Overview of receptor signaling and second messengers – nuclear hormone receptors
Tues 1/28	microRNA regulation and function
Thurs 1/30	TGFbeta/BMP signaling

Tues 2/4	Receptor tyrosine kinase signaling
Thurs 2/6	Paper 1 critique and discussion
Tues 2/11	Wnt/hh pathways
Thurs 2/13	Notch transmembrane receptors and their ligands
Tues 2/18	Signaling from the extracellular matrix
Thurs 2/20	Paper 2 critique and discussion
Tues 2/25	Midterm exam this week
Thurs 2/27	
Spring recess 3/3-3/14	
Tues 3/18	Overview of embryonic development
Thurs 3/20	Overview of signaling in stem cells
Tues 3/25	Signaling in bone and cartilage
Thurs 3/27	Paper 3 critique and discussion
Tues 4/1	Signaling in adipose tissue
Thurs 4/3	Signaling in vascular endothelial cells
Tues 4/8	Signaling in smooth muscle cells
Thurs 4/10	Signaling in cardiac muscle
Tues 4/15	Signaling in skeletal muscle
Thurs 4/17	Paper 4 critique and discussion
Tues 4/22	Signaling in hematopoiesis
Thurs 4/24	Signaling in cancer cells
Tues 4/29	Signaling in cancer stroma (Final exam will be administered)

Thurs 5/1	Paper 5 critique and discussion
May 5-9	Final exam week

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Academic Honesty Statement: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

Students with disabilities statement: If you have a disability for which you may be requesting an accommodation, please contact Ann Smith, Director of Disabilities Services, 121 East Annex, 581-2319, as early as possible in the term.

Sexual Discrimination Reporting
The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

> **If you want to talk in confidence** to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Cutler Health Center: at 207-581-4000**. For *confidential resources off campus*: **Rape Response Services:** 1-800-310-0000 or **Spruce Run**: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: **Office of Sexual Assault & Violence Prevention: 207-581-1406**, **Office of Community Standards: 207-581-1409**, **University of Maine Police: 207-581-4040 or 911**. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM for Graduate Courses

GRADUATE PROGRAM/UNIT GSBSE

CURRENT COURSE DESIGNATOR BMS CURRENT COURSE NUMBER 650

EFFECTIVE SEMESTER Spring 2016

TITLE Grant Writing in Biomedical Science & Engineering

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☒ New Course with Electronic Learning[1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s)		
David Neivandt		
College(s) Curriculum Committee Chair(s) [if applicable]		
Robert Burgess		Robert Burgess Digitally signed by Robert Burgess DN: cn=Robert Burgess, o, ou, email=robert.burgess@jax.org, c=US Date: 2015.03.10 09:33:09 -05'00'
College Dean(s)		
Carol Kim		
Dean and Associate Provost for Graduate Studies		

1. If a course involves significant electronic access for the primary delivery of its content (more than 50%), the course proposal should specify faculty training/experience in use of technology and how the electronic delivery will be managed. Please consult with the Office of Distance Education for more information.
2. Courses cross-listed below 400-level require the permission of the Dean and Associate Provost for Graduate Education.

SECTION 1 (FOR NEW COURSE PROPOSALS):

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

BMS 650 Grant Writing in Biomedical Science & Engineering
Prerequisites: none
Credits: 3

This course is intended to teach you the basics of writing a grant to secure funding for your scientific and/or engineering research.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music	☐ Clinical	☐ Field Experience/Internship	☐ Research	☐ Studio
☐ Laboratory	☒ Lecture/Seminar	☐ Recitation	☐ Independent Study	☐ Thesis

Text(s) planned for use:

None

Course Instructor (include name, position, teaching load):

Various GSBSE Faculty

Reason for new course:

This course has been taught via video-conference in the Spring as BMS 690 Special Topics.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

◉ No. The department will not request additional resources for this course.

○ Yes. Please list additional resources required and note how they will be funded or supported.

This course is video-conferenced to multiple sites. GSBSE Faculty are familiar with this technology and setup is managed by the Executive Assistant in conjunction with IT and administrative personnel at all sites.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

This course is currently being taught and will continue to be offered, no additional resources are required, just adding the course with its own designation.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

Every year. No overload salary payments will be required

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Reason for course modification:

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

Course Description and Syllabus

Course Information

BMS 650 Grant Writing in Biomedical Science & Engineering

Course description: This course is intended to teach you the basics of writing a grant to secure funding for your scientific and/or engineering research.

Number of credit hours: 3

Prerequisites (previous courses, knowledge, and skills): none

General Education requirements satisfied (if applicable): none

Faculty Information

Course Coordinator:
Rob Wheeler
Associate Professor of Microbiology University of Maine
Molecular & Biomedical Sciences
Hitchner Hall 209
robert.wheeler@umit.maine.edu
207---581---2890

Course Faculty:
Rob Wheeler, UMaine
Clarissa Henry, UMaine Jo Anne Goodnight, TJL Sven Davisson, TJL Lynn Hutchison, TJL
Jason Charland, UMaine Rob Burgess, TJL

Instructional Materials and Methods

The Grant Application Writer's Workbook – National Institutes of Health. Russell, S.W. and Morrison, D.C. (Revision 10/2010 and Updates for Form C and Biosketch). Available for order on---line @ http://www.grantcentral.com/workbooks.html
$75, but totally worth it.

Course Goals:

This course is intended to teach you the basics about writing a grant to secure funding for your scientific and/or engineering research. Throughout the semester, you will write a full grant and participate in a mock grant review process. The grant you write should encompass the work that one PhD student could accomplish, with their current

resources, in 4---5 years of work. In addition to the nuts and bolts of grantwriting, this course will also cover some of the more bureaucratic aspects of writing (what organizations fund competitive grants, how do you find them, how do you tailor your proposal for them, how do you write a budget and biographical sketch). Writing a fundable grant requires imagination, knowledge of the scientific literature, time spent writing and rewriting to make your point crystal clear, and quite a bit of optimism. Are you ready for the challenge?

Grading and Course Expectations

50% written assignments turned in ON TIME to your mentor.
Lead---up assignments: Lose 2% for up to a week late, lose 5% for 1---2 weeks late. Complete grant: Lose 2% for each day late.
Re---written grant: Lose 2% for each day late.

50% Re---written grant grade

Grading Scale:

93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
63-66%	D
60-62%	D-
59% and below	F

Course Schedule:

Date	Week #	Subject	Facilitator	Homework	Reading
14-Jan	Week 1	Course overview and Keys to writing a fundable grant	Wheeler	Order your "textbook"	
21-Jan	Week 2	Writing process overview video (On-line only)	N/A	2 Grant ideas, with 2-3 Specific Aims	Chapters 2, 7, 8
28-Jan	Week 3	Developing your question	Henry	Rationale and Specific Aims page	Chapters 10 & 11
4-Feb	Week 4	Organization of the Research Strategy Section	Goodnight	Aim 1 (Rationale, Strategy, Outcomes, Pitfalls/Alternatives)	
11-Feb	Week 5	Key aspects of writing for the NIH: NRSA Graduate Fellowship	TBA	Aim 2 (Rationale, Strategy, Outcomes, Pitfalls/Alternatives)	
18-Feb	Week 6	Pre- and Post-award Management	Sven Davisson	Re-write Rationale and Specific Aims page	
25-Feb	Week 7	Organization of the Biosketch, Budget and Mentoring Plan	TBA	Significance and Innovation	Chapter 9
4-Mar	BREAK				
11-Mar	BREAK				
18-Mar	Week 8	Keys to writing for a private foundation	Hutchison	Abstract, Biosketch, Budget, Mentoring Plan, Human subjects, Vertebrate animals, etc.	Chapters 13, 14, 18, 19
25-Mar	Week 9	Key aspects of writing for the NSF	Charland		
1-Apr	Week 10	The review process	Burgess		
8-Apr	Week 11	Study section etiquette and training	Henry	Complete Grant Due	
15-Apr	Week 12	Mock Study Section	Henry	Primary and Secondary Reviews	
22-Apr	Week 13	Responding to critiques	Henry		
29-Apr	Week 14	Wrap up	Wheeler	Re-written grant due	
6-May	FINALS				

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Academic Honesty Statement: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

Students with disabilities statement: If you have a disability for which you may be requesting an accommodation, please contact Ann Smith, Director of Disabilities Services, 121 East Annex, 581-2319, as early as possible in the term.

Sexual Discrimination Reporting
The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

> **If you want to talk in confidence** to someone about an experience of sexual discrimination, please contact these resources:
>
> For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Cutler Health Center: at 207-581-4000**. For *confidential resources off campus*: **Rape Response Services:** 1-800-310-0000 or **Spruce Run**: 1-800-863-9909.
>
> **Other resources:** The resources listed below can offer support but may have to report the incident to others who can help:
>
> For *support services on campus*: **Office of Sexual Assault & Violence Prevention: 207-581-1406**, **Office of Community Standards: 207-581-1409**, **University of Maine Police: 207-581-4040 or 911**. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM for Graduate Courses

GRADUATE PROGRAM/UNIT GSBSE

CURRENT COURSE DESIGNATOR BMS CURRENT COURSE NUMBER 660

EFFECTIVE SEMESTER Spring 2016

TITLE Cell, Molecular and Developmental Neurobiology

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☒ New Course with Electronic Learning [1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s)		
David Neivandt		
College(s) Curriculum Committee Chair(s) [if applicable]		
Robert Burgess		Robert Burgess Digitally signed by Robert Burgess DN: cn=Robert Burgess, o, ou, email=robert.burgess@jax.org, c=US Date: 2015.03.10 09:31:13 -05'00'
College Dean(s)		
Carol Kim		
Dean and Associate Provost for Graduate Studies		

1. If a course involves significant electronic access for the primary delivery of its content (more than 50%), the course proposal should specify faculty training/experience in use of technology and how the electronic delivery will be managed. Please consult with the Office of Distance Education for more information.
2. Courses cross-listed below 400-level require the permission of the Dean and Associate Provost for Graduate Education.

SECTION 1 (FOR NEW COURSE PROPOSALS):

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

BMS 660 Cell, Molecular and Developmental Neurobiology
Prerequisites: None
Credits: 3

Directed reading with discussion, supplemented by reading and discussion of classic papers in the field of Neuroscience.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music	☐ Clinical	☐ Field Experience/Internship	☐ Research	☐ Studio
☐ Laboratory	☒ Lecture/Seminar	☐ Recitation	☐ Independent Study	☐ Thesis

Text(s) planned for use:

Principles of Neuroscience
From Neuron to Brain

Course Instructor (include name, position, teaching load):

Various GSBSE Faculty

Reason for new course:

This course has been taught via video-conference as BMS 690 Special Topics. We would like to offer it with its own course designation.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

◉ No. The department will not request additional resources for this course.

○ Yes. Please list additional resources required and note how they will be funded or supported.

This course is video-conferenced to multiple sites. GSBSE Faculty are familiar with this technology and setup is managed by the Executive Assistant in conjunction with IT and administrative personnel at all sites.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

This course is currently being taught and will continue to be offered, no additional resources are required, just adding the course with its own designation.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

Every other Spring. No overload salary payments will be required.

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Reason for course modification:

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

Course Description and Syllabus

Course Information

BMS 660 Cellular, Molecular, and Developmental Neurobiology

Course description: This class is directed reading with discussion, supplemented by reading and discussion of classic papers in the field of Neuroscience.

Number of credit hours: 3

Prerequisites (previous courses, knowledge, and skills): none

General Education requirements satisfied (if applicable): none

Faculty Information

Name: Rob Burgess, PhD

Phone, fax numbers: 207-288-6706

E-mail address: Robert.burgess@jax.org

Instructional Materials and Methods

Textbook title(s) and other required course materials: *Principles of Neuroscience* and/or *From Neuron to Brain*, as well as selected seminal papers in the field

Student Learning Outcomes

Course Goals: Understanding of neuroscience breakthroughs, including methods, and key discoveries and insights.

Instructional Objectives: Students will be able to critically analyze neuroscience literature.

Student Learning Outcomes: Students given a research paper will be able to differentiate the breakthroughs in neuroscience and explain

why they were breakthroughs, the methods, discoveries, and outcomes.

Grading and Course Expectations

Your grading criteria: Participation demonstrating understanding will be 50% of the grade, another 50% will come from the written final.

Grading Scale:

93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
63-66%	D
60-62%	D-
59% and below	F

Your Policies:

- Attendance and class participation: required, 50% of grade
- Final date for all work to be in, unless other arrangements have been made with instructor: May 8th

Course Schedule:

Week 1, Jan 16 Intro to the class and its "organization"
Buy:

Kandel, Schwartz, Jessell, Siegelbaum and Hudspeth Principles of Neuroscience, 5th Ed.

Nicholls, Martin, Fuchs, Brown, Diamond, Weisblat, From Neuron to Brain, 5th Ed.

Download: MIT Opencourseware or iTunesU, Gerald Schneider, Brain Structure and Its Origins, and Neuroscience and Behavior

Week 2, Jan 23 Ionic basis of the resting potential
Have read FNTB Chapter 6, PONS Chapter 6
Hodgkin and Huxley papers

Week 3, Jan 30 Ionic basis of the action potential
Have read FNTB chap 7, PONS Chapter 7
More Hodgkin and Huxley

Week 4, Feb 6 Ion Channels
Have read FNTB Chapter 4,5 PONS Chapter 5
Sackman and Neher patchclamp papers

Week 5, Feb 13 Electrical signaling (pumps etc)
Have read FNTB Chapters 8,9
Zagotta and Aldrich on K-channel gating

Week 6, Feb 20 Synaptic transmission
Have read FNTB Chap 11,12 PONS Chapter 8 (see also 9,10,11)
Del Castillo and Katz, Fatt and Katz - quantal release at the NMJ

Week 7 Feb 27 Vesicle cycle (SNAREs)
Have read FNTB Chapter 13, PONS Chapter 12
Sollner et al., SNAREs, Sudhof review article

Week 8, March 6 Spring Break

Week 9, March 13 Spring Break

Week 10, March 20 Neurotransmitter systems
Have read FNTB Chapter 15, PONS Chapter 13
Dunce and Rutabaga in flies

Week 11, March 27 Synaptic Plasticity
Have read FNTB Chapter 16, PONS last part of Chapter 12 above
Bliss and Lomo, NMDA receptor Mg++ block, Sackter mechanisms of LTP

Week 12, April 3 Neurodevelopment Cell fate, cell migration
Have read ½ of Chapter 25 FNTB, PONS chapters 52, 53
Jessell and Pfaff, spinal cord papers

Week 13, April 10 Axon outgrowth and guidance
Have read rest of Chapter 25 FNTB, PONS Chapter 54
Marc Tessier-Laviegn, Netrin discovery and review

Week 14, April 17 Synaptogenesis
Have read FNTB third half of Chapter 25, PONS Chapter 55
Sanes and Lichtman review, Scheiffle paper

Week 15, April 24 Developmental critical periods and Regeneration (Rob in TX)
Have read FNTB chapters 26,27 PONS chapter 57
O'Leary on topographic maps, Konishi Bird song

Week 16 May 1 Visual system to tie it all up, anatomy, activity-dependent refinement
Have read PONS Chapter 56
Hubel and Wiesel papers

May 8 Final due: The auditory system localizes sound by differences in timing and intensity, tell me how, explaining the anatomy, synaptic connectivity, and cellular physiology, 5 pages. Cite at least 5 primary (classic) refs. 50% of grade

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Academic Honesty Statement: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

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The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Cutler Health Center: at 207-581-4000**. For *confidential resources off campus*: **Rape Response Services:** 1-800-310-0000 or **Spruce Run**: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: **Office of Sexual Assault & Violence Prevention: 207-581-1406**, **Office of Community Standards: 207-581-1409**, **University of Maine Police: 207-581-4040 or 911**. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM for Graduate Courses

GRADUATE PROGRAM/UNIT GSBSE

CURRENT COURSE DESIGNATOR BMS CURRENT COURSE NUMBER 690

EFFECTIVE SEMESTER Spring 2016

TITLE Special Topics in Biomedical Sciences

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☐ New Course with Electronic Learning [1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☒ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☐ Other (specify)

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s)		
David Neivandt		
College(s) Curriculum Committee Chair(s) [if applicable]		Robert Burgess
Robert Burgess		Digitally signed by Robert Burgess DN: cn=Robert Burgess, o, ou, email=robert.burgess@jax.org, c=US Date: 2015.03.10 09:32:27 -05'00'
College Dean(s)		
Carol Kim		
Dean and Associate Provost for Graduate Studies		

1. If a course involves significant electronic access for the primary delivery of its content (more than 50%), the course proposal should specify faculty training/experience in use of technology and how the electronic delivery will be managed. Please consult with the Office of Distance Education for more information.
2. Courses cross-listed below 400-level require the permission of the Dean and Associate Provost for Graduate Education.

SECTION 1 (FOR NEW COURSE PROPOSALS):

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music ☐ Clinical ☐ Field Experience/Internship ☐ Research ☐ Studio

☐ Laboratory ☐ Lecture/Seminar ☐ Recitation ☐ Independent Study ☐ Thesis

Text(s) planned for use:

Course Instructor (include name, position, teaching load):

Reason for new course:

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

○ No. The department will not request additional resources for this course.

○ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

BMS 690 Special Topics in Biomedical Science
Prerequisites: None
Credits: 1-3

Current and emerging topics in the field of Biomedical Sciences.

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

BMS 690 Special Topics in Biomedical Science & Engineering
Prerequisites: None
Credits: 1-3

Current and emerging topics in the field of Biomedical Science and Engineering.

Reason for course modification:

To change the title to better clarify the course content, which reflects the new title of the school from Biomedical Sciences to Biomedical Science and Engineering.

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

THE UNIVERSITY OF MAINE

RECEIVED
APR 22 2015
GRADUATE SCHOOL

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

GRADUATE PROGRAM/UNIT: **Psychology**

COURSE DESIGNATOR: **PSY** COURSE NUMBER: **603** EFFECTIVE SEMESTER: **asap**

COURSE TITLE: **Ethics and Professional Problems**

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☐ New Course with Electronic Learning [1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☒ Other (specify) alternative to INT 601

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s) Michael Robbins	4/12/15	MR
College(s) Curriculum Committee Chair(s) [If applicable] Laura Artesani	4/21/15	LA
College Dean(s) Timothy M. Cole	4/21/15	TMC
Graduate School		

1. If a course involves significant electronic access for the primary delivery of its content (more than 50%), the course proposal should specify faculty training/experience in use of technology and how the electronic delivery will be managed. Please consult with the Office of Distance Education for more information.
2. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

PSY 603 - Ethics and Professional Problems
Responsibilities of the psychologist in the light of ethics recommended by the American Psychological Association

Prerequisites and Notes
Permission

Credits: 3

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

PSY 603 - Ethics and Professional Problems
Ethical obligations of the psychologist with regard to clinical practice, supervision, teaching, and key areas in the responsible conduct of research

Prerequisites and Notes
Permission

Credits: 3

Reason for course modification:

This course is being presented for approval as an alternative to INT 601 to satisfy the campus-wide required research ethics course for graduate students. It has already been reviewed and deemed to meet relevant federal regulations by ORSP.

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

Please return the completed form with appropriate signatures and documentation to the Graduate School.
5775 Stodder Hall, Room 42
Orono, Maine 04469-5775

Course Proposal Guidelines available at http://umaine.edu/graduate/system/files/files/CourseGuidelines.pdf

Department of Psychology

THE UNIVERSITY OF MAINE

5742 Clarence Cook Little Hall
Orono, Maine 04469-5742
Tel: 207-581-2030
www.umaine.edu

02/04/2015

Office of Research and Sponsored Programs

Re: Request for Approval of Departmental Graduate-Level RCR Course

The department of psychology is requesting that our graduate level course in Ethics and Professional Issues (PSY 603) be approved as a graduate-level RCR course.

The following outlines our efforts to satisfy Step 1 and Step 2 the course approval process.

Step 1:

The assigned course instructor, Emily Haigh has completed CITI training. See attached.

Step 2:

We have amended our original course syllabus to more fully address the nine topics outlined in the Office of Research Integrity publication, *Introduction to the Responsible Conduct of Research,* by Nicholas H. Steneck.

The nine topics are explicitly covered in week 11 (Mentor and Trainee Responsibilities), week 12 (RCR – Rules of the Road and Research Misconduct), week 13 (The Protection of Human Subjects, The Welfare of Laboratory Animals, Conflicts of Interest, Data Management Practices), and week 14 (Mentor and Trainee Responsibilities, Collaborative Research, Authorship and Publication, and Peer Review. Relevant readings from Steneck, 2007 and the National Academy Press publication, On Being a Scientist: Responsible Conduct in Research are assigned for each topic. Please see syllabus for details.

In additional to the assignments original to PSY 603 (complete required assigned and discuss; present and lead a discussion of two required readings, complete a 15-20 page research paper on an ethical issue of choice, complete an in-class midterm and final exam) we now require that students complete University of Maine on-line Training Program in Financial Conflict of Interest Training Program and the on-line training program in Human Research Subjects Protections (see syllabus for details)

Thank you for reviewing the syllabus and we look forward to further advisement regarding this process.

Sincerely,
Emily Haigh

Michael A. Robbins
Chair, Department of Psychology

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

SOCIAL & BEHAVIORAL RESEARCH - BASIC/REFRESHER CURRICULUM COMPLETION REPORT

Printed on 11/25/2014

LEARNER	Emily Haigh (ID: 1386014) 374 Little Hall Department of Psychology Orono ME 04469-5472 USA
DEPARTMENT	Psychology
PHONE	207-581-2053
EMAIL	emily.a.haigh@maine.edu
INSTITUTION	University of Maine System
EXPIRATION DATE	11/24/2018

SOCIAL & BEHAVIORAL RESEARCH - BASIC/REFRESHER

COURSE/STAGE:	Refresher Course/2
PASSED ON:	11/25/2014
REFERENCE ID:	13040863

REQUIRED MODULES	DATE COMPLETED	SCORE
SBE Refresher 1 – Defining Research with Human Subjects	06/10/14	2/2 (100%)
SBE Refresher 1 – Privacy and Confidentiality	06/10/14	2/2 (100%)
SBE Refresher 1 – Assessing Risk	06/10/14	2/2 (100%)
SBE Refresher 1 – Research with Children	06/10/14	2/2 (100%)
SBE Refresher 1 – International Research	11/25/14	2/2 (100%)
SBE Refresher 1 – History and Ethical Principles	07/27/10	5/5 (100%)
SBE Refresher 1 – Federal Regulations for Protecting Research Subjects	07/27/10	4/5 (80%)
SBE Refresher 1 – Informed Consent	11/25/14	2/2 (100%)
SBE Refresher 1 – Research with Prisoners	07/27/10	4/4 (100%)
SBE Refresher 1 – Research in Educational Settings	07/27/10	5/5 (100%)
SBE Refresher 1 – Instructions	07/27/10	No Quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

UNIVERSITY OF MAINE
COLLEGE OF LIBERAL ARTS AND SCIENCES
DEPARTMENT OF PSYCHOLOGY
Doctoral Program in Clinical Psychology

SYLLABUS

PSY 603-0001: Ethics and Professional Problems

Instructor: Emily A.P. Haigh, Ph.D.
374 Little Hall
207-581-2053
emily.a.haigh@maine.edu

Seminar Meetings: Fridays, 09:00 a.m. to 11:50 noon

Description
This seminar is designed to familiarize students with ethical, legal, and professional issues associated with the practice of clinical psychology. Psychologists' ethical obligations vis-à-vis teaching, research, and clinical supervision will also be considered.

Learning Outcomes
1. Ethical principles in research, teaching, and practice
    a. Students will identify and describe the ethical principles and standards that are promulgated by the American Psychological Association and the laws and regulations governing the practice of psychology in the state of Maine.
    b. In addition, students will critically consider the implications of the APA ethics codes and related laws and regulations in the context of research with human and animal participants, clinical practice, teaching and supervision and general principles of professional and scientific conduct.
    c. Measurement: class discussion, essay-based exams, essay
2. Summarize and explain readings in ethics
    a. Students will summarize and explain key readings in ethics and participate in class discussion on specific topics
    b. Measurement: class discussion, article presentation essay-based exams, essay

Requirements for Course Grade
Grades for this course are determined by students' performance on the following four assignments:
1. Read the assigned readings and participate in discussion (25% of grade).
2. Article Presentation: 10% Summarize and lead discussion of 2 assigned readings.
3. Two preliminary exams, each covering approximately half of the course content (Exam 1, Date TBD; Exam 2, TBD) Performance on each exam contributes 20% to the course grade).
4. A 15-20-page APA-style scholarly paper dealing with ethical issues related to your area of research interest. You are encouraged to discuss possible paper topics with your research advisor. See list of potential topics for ideas (25% of grade).

POSSIBLE ESSAY TOPICS

- Ethical considerations when working with individuals from a diverse background (e.g. race, ethnicity, sexual orientation, religion, spirituality, age, socio-economic-status, disability)
- The influence of managed care on clinical practice
- Duty to Warn
- HIV, confidentiality, and duty to protect
- Ethical issues in group/family work
- Former substance users working as counselors: A dual relationship?
- Scientific misconduct (e.g. Diederik Stapel)
- The ethics of offering therapy that lacks empirical support
- Ethical and legal issues related to cases of suicide
- Sexual feelings and behavior in the psychotherapy relationship
- The involvement of psychologists in national security-related activities
- Ethical considerations of the increasing use of technology in clinical settings
- The role of psychologists responding to complex international humanitarian disasters
- Ethical issues in rural healthcare
- The ethical implications of assisted suicide
- The ethics of social media (e.g. using the internet to access personal information about client; maintaining an online presence as a clinical psychologist)

Required Readings

Required readings listed under the specific weekly topics will be made available to you by the instructor.

Online Resources:

American Psychological Association (2002). Ethical principles of psychologists and code of conduct. *American Psychologist, 57,* 1060-1073.
Available online at: **www.apa.org/ethics/code.html**

Maine Statutes: available online at: **http://janus.state.me.us/legis/statutes**

Reporting Abuse or Neglect of Children
- Title 22, chapter 1071, paragraph 4011 and following

Reporting Abuse of Adults
- Title 22, chapter 958-A, paragraph 3477

Involuntary Hospitalization
- Title 34-B, chapter 3, paragraph 3801 and following

Criminal Liability: Elements of Crimes
- Title 17-A, chapter 2, paragraphs 31-40

Mental Examination of Persons Accused of Crime (with reference to the issues of competency, criminal responsibility, abnormal condition of mind, and any other issue involving the mental or emotional condition of the defendant)
- Title 15, chapter 5, paragraphs 101-D (revised on web site on 08/11/2010).

State Forensic Service
- Title 34-B, chapter 1, paragraph 1212.

Treatment of Minors: Consent and Authorization
- Title 22, chapter 260, paragraphs 1502-1505; chapter 405, paragraph 1823

Psychologists
- Title 32, chapter 56, paragraph 3811 and following.

Steneck, N. H. (2007). ORI introduction to the responsible conduct of research. Government Printing Office.
Available online at https://ori.hhs.gov/sites/default/files/rcrintro.pdf

Committee on Science, Engineering and Public Policy, National Academy of Sciences, National Academy of Engineering and Institute of Medicine, On Being a Scientist: Responsible Conduct in Research, National Academy Press, Third Addition, 2009.
Available online at: http://www.nap.edu/catalog.php?record_id=12192

Course Outline & Readings

Week 1:

Overview of Course, Pretest, Ethical Principles and Standards.

Readings
1. American Psychological Association. (2010). Ethical principles of psychologists and code of conduct. Retrieved from http://apa.org/ethics/code/index.aspx
2. Behnke, S. H., & Jones, S. E. (2012). Ethics and ethics codes for psychologists. In S. J. Knapp, M. C. Gottlieb, M. M. Handelsman, & L. D. VandeCreek (Eds.), *APA handbook of ethics in psychology* (Vol. 1, pp. 43-74). Washington, DC: American Psychological Association.

Week 2:

Professional Licensure, Disciplinary Procedures, and Dealing with Ethical Issues; Psychologists' Competence.

Readings Licensure:
1. DeMers, S. T., & Schaffer, J. B. (2012). The regulation of professional psychology. In S. J. Knapp, M. C. Gottlieb, M. M. Handelsman, & L. D. VandeCreek (Eds.), *APA handbook of ethics in psychology* (Vol. 1, pp. 453-482). Washington, DC: American Psychological Association.
2. Maine Statutes re Psychology Licensure (see **http://janus.state.me.us/legis/statutes**).

Competence:
1. Nagy, T. F. (2012). Competence. In S. J. Knapp, M. C. Gottlieb, M. M. Handelsman, & L. D. VandeCreek (Eds.), *APA handbook of ethics in psychology* (Vol. 1, pp. 147-174). Washington, DC: American Psychological Association.
2. Johnson, W. B., Barnett, J. E., Elman, N. S., Forrest, L., & Kaslow, N. J. (2012). The competent community: Toward a vital reformulation of professional ethics. *American Psychologist*, *67*(7), 557-569. doi:10.1037/a0027206
3. Barnett, J. E., Baker, E. K., Elman, N. S., & Schoener, G. R. (2007). In pursuit of wellness: The self-care imperative. *Professional Psychology: Research And Practice*, *38*(6), 603-612. doi:10.1037/0735-7028.38.6.603

(Presenter:)

Week 3:

Confidentiality: I. General Principles; II. Limits on Confidentiality.

Readings General Principles:
1. Koocher & Keith-Spiegel (2008), Chapter 8

Limits of Confidentiality:
1. Fisher, M. A. (2012). Confidentiality and record keeping. In S. J. Knapp, M. C. Gottlieb, M. M. Handelsman, & L. D. VandeCreek (Eds.), *APA handbook of ethics in psychology* (Vol. 1, pp. 333-375). Washington, DC: American Psychological Association.
2. Maine Statutes regarding mandatory reporting of abuse and neglect of children and disabled adults.

3. Walfish, S., Barnett, J.E., Marlyere, K. & Zielke, R. (2010) "Doc,There's Something I Have To Tell You": Patient Disclosure to Their Psychotherapist of Unprosecuted Murder and Other Violence, *Ethics & Behavior, 20*:5, 311-323, doi;10.1080/10508422.2010.491743 **(Presenter:)**
4. Hon. Gail L. Perlman (Ret.) (2012) A Judicial Perspective on Psychotherapist–Client Privilege: Ten Practical Tips for Clinicians, Journal of Child Custody, 9:1-2,126-152, DOI: 10.1080/15379418.2012.652573 **(Presenter:)**

Week 4:

Ethical Issues in Psychotherapy, and Documentation in Clinical Psychology.

Readings
1. Koocher & Keith-Spiegel (2008), Chapter 5.
2. Koocher & Keith-Spiegel (2008), Chapter 6.

Week 5:

Relationships with Colleagues and the Community; The Practice of Psychology: Money Matters and Advertising.

Readings Colleagues:
1. Koocher & Keith-Spiegel (2008), Chapter 13
2. Koocher & Keith-Spiegel (2008), Chapter 15

Money:
3. Barnett, J. E., & Klimik, L. (2012). Ethics and business issues in psychology practice. In S. J. Knapp, M. C. Gottlieb, M. M. Handelsman, & L. D. VandeCreek (Eds.), *APA handbook of ethics in psychology* (Vol. 1, pp. 433-451). Washington, DC: American Psychological Association.
4. Koocher & Keith-Spiegel, Chapters 7 and 14.

Week 6:

Diversity in Clinical Psychology: Ethical and Professional Issues.

Readings
1. Iijima Hall, C.C. (2014). The evolution of the revolution: The successful establishment of multicultural psychology. Hall, In F. T. L. Leong (Editor-in-Chief), (2014). *APA handbook of multicultural psychology, Vol. 1: Theory and research.* (pp. 3-18). Washington, DC, US: American Psychological Association, xxvii, http://dx.doi.org/10.1037/14189-001
2. Hoop, J.G., DiPasquale, T., Hernandez, J.M., & Roberts, L.W. (2008) Ethics and Culture in Mental Health Care, *Ethics & Behavior,18*:4, 353-372, DOI: 10.1080/10508420701713048
3. Smith, L. (2009). Enhancing training and practice in the context of poverty. *Training And Education In Professional Psychology*, *3*(2), 84-93. doi:10.1037/a0014459 **(Presenter:)**

Week 7:

Multiple Role Relationships. Instructor: Provost Hecker.

Readings
1. Koocher & Keith-Spiegel (2008), Chapter 10.
2. Koocher & Keith-Spiegel (2008), Chapter 11.
3. Koocher & Keith-Spiegel, (2008) Chapter 12.
4. Sommers-Flanagan, R. (2012). Boundaries, multiple roles, and the professional relationship. In S. J. Knapp, M. C. Gottlieb, M. M. Handelsman, & L. D. VandeCreek (Eds.), *APA handbook of ethics in psychology* (Vol. 1, pp. 241-277). Washington, DC: American Psychological Association.

03/06/15 and 03/13/15: SPRING RECESS

Week 8:
Psychology and the Law I: Malpractice; *Psychology and the Law II: Civil Commitment.*
Instructor: Geoff Thorpe, PhD.
Reading Malpractice:
1. Bennett, B. E., Bricklin, P. M., Harris, E., Knapp, S., VandeCreek, L., & Younggren, J. (2006). *Assessing and managing risk in psychological practice: An individualized approach.* Rockville, MD: The Trust. Chapter 11.

Civil Commitment:
2. Maine Statutes on involuntary hospitalization.

Week 9:
Psychology and the Law III: Forensic Evaluations; *Psychology and the Law IV: Expert Witness Testimony.* Instructor: Geoff Thorpe, PhD.
Reading
1. Ewing, C. P. (2003). Expert testimony: Law and practice. In A. M. Goldstein (Ed.), *Forensic psychology* (Vol. 11, pp. 55-66). New York: Wiley.
2. Guidelines for child custody evaluations in family law proceedings, APA Practice Directorate (2009). Retrieved from http://www.apa.org/practice/guidelines/child-custody.pdf on 01/03/2011.
3. Koocher & Keith-Spiegel (2008), Chapter 17
4. Maine Statutes on trial competence, criminal responsibility, etc.

Week 10 Part 1:
Ethical Issues in Assessment.
Reading
1. Bersoff, D. N., DeMatteao, D., & Foster, E. E. (2012). Assessment and testing. In S. J. Knapp, M. C. Gottlieb, M. M. Handelsman, & L. D. VandeCreek (Eds.), *APA handbook of ethics in psychology* (Vol. 2, pp. 45-74). Washington, DC: American Psychological Association.
2. Koocher & Keith-Spiegel (2008), Chapter 9.

Week 11:
Teaching and Clinical Supervision.
Reading
1. Koocher & Keith-Spiegel (2008), Chapter 16
2. Pettifor, J., Sinclair, C., & Falender, C. A. (2014). Ethical supervision: Harmonizing rules and ideals in a globalizing world. *Training And Education In Professional Psychology*, *8*(4), 201-210. doi:10.1037/tep0000046
   (Presenter:)
3. Steneck (2007), Chapter 7
4. On Being a Scientist: Responsible Conduct in Research (2009), p4-7

Week 12:
Responsible Conduct of Research: Part 1
Online Trainings to be completed by last day of class:
1. Complete the University of Maine on-line Training Program in Financial Conflict

of Interest which is accessible at http://umaine.edu/orsp/compliance/conflict-of-interest/

2. Complete the University of Maine on-line Training Program in Human Research Subjects Protections, which is accessible at http://umaine.edu/research/research-compliance/institutional-review-board-for-the-protection-of-human-subjects-irb/required-training/. Follow the detailed instructions at the bottom of the web page very carefully. You must do the Human Subjects Basic Course training. Most of you will choose the subcategory of Human Subjects training for Social and Behavioral Research Investigators but some may choose the subcategory for Biomedical Research Investigators. You must complete at least one of the "elective" topics.

Research Values

1. Fisher, C. B., & Vacanti-Shova K. (2012). The Responsible Conduct of Psychological Research: An Overview of Ethical Principles, APA Ethics Code Standards, and Federal Regulations. In S. J. Knapp, M. C. Gottlieb, M. M. Handelsman, & L. D. VandeCreek (Eds.), *APA handbook of ethics in psychology* (Vol. 2, pp. 355-369). Washington, DC: American Psychological Association.
2. Steneck (2007), Chapter 1 Rules of the Road
3. On Being a Scientist: Responsible Conduct in Research (2009), p1-3

Research Misconduct

1. Steneck (2007), Chapter 2
4. On Being a Scientist: Responsible Conduct in Research (2009), p15-18
5. UMaine Policy & Procedures on Alleged Misconduct in Research and other Scholarly Activities, http://www.umaine.edu/research/vice-president-for-research/policy-and-procedures-on-alleged-misconduct-in-research-and-other-scholarly-activities/

Week 13:

Responsible Conduct of Research: Part 2

Protection of Human Subjects

1. Steneck (2007), Chapter 2
2. On Being a Scientist: Responsible Conduct in Research (2009), p24-25
3. Mays, V.M., (2012). Research Challenges and Bioethics Responsibilities in the Aftermath of the Presidential Apology to the Survivors of the U. S. Public Health Services Syphilis Study at Tuskegee, *Ethics & Behavior, 22*:6, 419-430, DOI: 10.1080/10508422.2012.730787 **(Presenter:)**
4. Lee, S.S. (2012). Lessons Learned From the U.S. Public Health Service Syphilis Study at Tuskegee: Incorporating a Discourse on Relationships Into the Ethics of Research Participation Among Asian Americans, *Ethics & Behavior, 22*:6, 489-492, DOI: 10.1080/10508422.2012.730002 **(Presenter:)**

The Welfare of Animals Used In Research

1. Steneck (2007), Chapter 4
2. On Being a Scientist: Responsible Conduct in Research (2009), p25-28

Conflicts of Interest and Data Management Practices

1. Steneck (2007), Chapter 5
2. On Being a Scientist: Responsible Conduct in Research (2009), p53-47
3. Steneck (2007), Chapter 6
4. On Being a Scientist: Responsible Conduct in Research (2009), p39-42

Week 14:

Responsible Conduct of Research: Part 3

Collaborative Research

1. Steneck (2007), Chapter 8
2. On Being a Scientist: Responsible Conduct in Research (2009), p29-33
3. "Mentor vs. Protégé", Chronicle of Higher Education; 12/17/2004, Vol. 51 Issue 17, pA14-A15, 2p, 1c, http://chronicle.com/free/v51/i17/17a01401.htm (Presenter:_____)

Authorship and Publication

1. Steneck (2007), Chapter 9
2. On Being a Scientist: Responsible Conduct in Research (2009), p35-38

Peer Review

1. Steneck (2007), Chapter 10
2. On Being a Scientist: Responsible Conduct in Research (2009), p34

Responsibilities to Society

1. On Being a Scientist: Responsible Conduct in Research (2009), p19-23

Finals Week: *Second Exam* (course material from 02/27/2015 to 04/17/2015), 90 minutes

Appendices

1. **Special Accommodations:** Students with disabilities who may need services or accommodations to fully participate in this class should contact Disability Services in 121 East Annex, (voice) 581-2319, (TTY) 581-2325 as early as possible in the semester.

2. **Academic Integrity:** Academic dishonesty includes cheating, plagiarism (i.e., presenting someone else's work as your own), and all forms of misrepresentation in academic work, and is unacceptable at The University of Maine. As indicated in the University of Maine's undergraduate on-line "Student Handbook," cheating is a violation of The University of Maine Student Conduct Code. An instructor who has probable cause or reason to believe a student has cheated may act upon such evidence, and should report the case to the supervising faculty member or the Department Chair for appropriate action. **Anyone found cheating on an exam will receive an F in the course.** Academic dishonesty will also be reported to appropriate university bodies and can result in expulsion from the university with *"For reasons of academic dishonesty"* noted on your transcript.

3. **Sexual Discrimination Reporting:** The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

   If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

   For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Cutler Health Center: at 207-581-4000**.

   For *confidential resources off campus*: **Rape Response Services:** 1-800-310-0000 or **Spruce Run**: 1-800-863-9909.

   Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

   For *support services on campus*: **Office of Sexual Assault & Violence Prevention: 207-581-1406**, **Office of Community Standards: 207-581-1409**, **University of Maine Police: 207-581-4040 or 911**. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

THE UNIVERSITY OF MAINE

RECEIVED
APR 30 2015
GRADUATE SCHOOL

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

GRADUATE PROGRAM/UNIT **Food Science and Human Nutrition**

COURSE DESIGNATOR **FSN** COURSE NUMBER **524** EFFECTIVE SEMESTER **Fall 2015**

COURSE TITLE **Research Methods and Biostatistical Techniques**

REQUESTED ACTION:

NOTE: A complete syllabus is required for all new courses and for the addition of an electronic learning component [1] to an existing course.

NEW COURSE (check all that apply and complete Section 1):

- ☐ New Course
- ☐ New Course with Electronic Learning[1]
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☒ Title Change
- ☒ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level) [2]
- ☐ Addition of Electronic Learning Component [1]
- ☒ Other (specify) satisfying research ethics

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS (Print name)	Date	Sign Initials
Leader, Initiating Department/Unit(s) M. Susan Erich	4/30/15	MSE
College(s) Curriculum Committee Chair(s) [if applicable] /		
College Dean(s) Edward Ashworth	4/30/15	EHA
Graduate School		

1. If a course involves significant electronic access for the primary delivery of its content (more than 50%), the course proposal should specify faculty training/experience in use of technology and how the electronic delivery will be managed. Please consult with the Office of Distance Education for more information.
2. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 1 (FOR NEW COURSE PROPOSALS):

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music ☐ Clinical ☐ Field Experience/Internship ☐ Research ☐ Studio

☐ Laboratory ☐ Lecture/Seminar ☐ Recitation ☐ Independent Study ☐ Thesis

Text(s) planned for use:

Course Instructor (include name, position, teaching load):

Reason for new course:

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

◯ No. The department will not request additional resources for this course.

◯ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

SECTION 2 (FOR COURSE MODIFICATIONS):

Current catalog description (include designator, number, title, prerequisites, credit hours):

FSN 524 Research Methods and Biostatistical Techniques
Prerequisite: Undergraduate statistics course or permission.
3 credit hours
Evaluates research design and statistics used in the areas of nutritional and medical research.

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

FSN 524 Responsible Design, Conduct and Analysis of Research
Prerequisite: Undergraduate statistics course or permission.
3 credit hours
Experimental design, ethical considerations, and statistics for responsible conduct of nutritional and medical research.

Reason for course modification:

Many of the topics covered by INT 601 were already being discussed in FSN 524, which has been an asynchronous online course since 2009. Federal agencies require discussions of ethical topics, so live discussions will be incorporated into class grading policies. The new title is more descriptive and will help prevent confusion with previous offerings of the class that did not satisfy the responsible conduct of research requirement.

SECTION 3 FOR COURSE ELIMINATIONS:

Reason for Elimination

Please return the completed form with appropriate signatures and documentation to the Graduate School.
5775 Stodder Hall, Room 42
Orono, Maine 04469-5775

Course Proposal Guidelines available at http://umaine.edu/graduate/system/files/files/CourseGuidelines.pdf

FSN 524 Research Methods and Biostatistical Techniques
Syllabus

Course description: Evaluates research design and statistics used in the areas of nutritional and medical research. 3 cr. Prerequisites: Undergraduate statistics course (e.g. MAT 232) or permission.

Faculty Information

Mary Ellen Camire, Ph.D.
Phone: 207-581-1627; fax: 207-581-1636
E-mail: Mary.Camire@umit.maine.edu
Website: http://www.foodsciencehumannutrition.umaine.edu/faculty/mary-ellen-camire/
Office hours: I will be available for questions every week. Times and dates will be announced on the website.

About This Course

Lectures for this class have been recorded and placed on the course Blackboard homepage. Course assessments and readings for all students are available only through Blackboard. Please watch the introductory video first to see how the class is laid out in Blackboard.

Students should have access to a computer, know how to turn computer on, reboot when necessary, download programs, send email, read email, and access the web.

Highspeed internet access (DSL or cable) is required. Software requirements: Internet Explorer version 11.0 or higher; Adobe Acrobat; Microsoft Word; SAS or SPSS statistical software.

Reaching the course homepage: Using an Internet browser such as Internet Explorer, or Mozilla Firefox, please type in the address "http://www.courses.maine.edu/" then enter your UNET (Mainestreet) ID and password on the next web page that appears. In general, your login ID and password will be the same as your UNET (your @maine.edu email address) or PeopleSoft information. After you type in your ID and password, please click the Login button. Next you will see a webpage that will contain a list of Blackboard courses for which you are registered. Click on "FSN 524-0990 Research Methods and Biostatistical Techniques (Fall 2015)" and you will be taken to a page that shows you any news for the course. From there you can enter the main class web page. I will demonstrate how to use the website in a special video on the website.

For technical assistance with logging in, please call the Distance Education Help Line @ 1-877-947-4357 (HELP), or email help@umit.maine.edu.

Importance of time management and adherence to assignment due dates
Please be sure to view lectures each week to prevent yourself from falling behind in the course. I strongly recommend reading the textbook chapters covered in each lecture before the lecture.

Instructional Materials

Required Textbook: Leslie G. Portnoy and Mary P. Watkins. *Foundations of Clinical Research-Applications to Practice*. 3rd ed. Prentice Hall. ISBN 0-13-171640-9. The second edition is quite different so please do not purchase it. There is a free on-line auxiliary study guide for this text at http://wps.prenhall.com/chet_portney_foundations_3/80/20537/5257572.cw/index.html

A list of references and reserve materials is available on the class website.

Learning Outcomes

Course goals and objectives:
Students will develop confidence in their ability to understand and conduct clinical research.
Students will learn how to use SAS or SPSS software to analyze data.

Expected outcomes:

-
- Students will understand the ethical implications of research and its publication.
- Students will design clinical studies.
- Students will conduct statistical analyses of data using SAS or SPSS.
- Students will interpret and apply research findings.

Course Policies

Late assignments will not be accepted. If you experience a loss of Internet connection or electricity while taking a quiz, please let me know as soon as possible and I will extend the time for that assessment.

In the case of severe illness with appropriate documentation from a healthcare provider I will assign a grade of Incomplete with work to be made up at a mutually agreed upon deadline. Incomplete grades will not be given for inability to complete assessments due to time commitments or computer failure.

Students with disabilities

If you have a disability for which you may be requesting an accommodation, please contact Ann Smith, Director of Disabilities Services, 121 East Annex, 581-2319, as early as possible in the term.

Suggested Course Lecture Schedule (you may cover the work faster)

Date	Topic	Textbook chapter	Quiz
8/31-9/5	Course overview: concepts and theories	1, 2	1
9/6-9/12	Ethical issues in clinical research: protection of human subjects and research animals; research misconduct; principles of measurement	3, 4	2
9/13-9/19	Reliability and validity of measurements	5, 6	3
9/20-9/26	Asking the research question (how to incorporate independent and dependent variable, formulation of hypotheses); sampling	7, 8	4
9/27-10/3	Experimental design and its validity	9, 10	5
10/4-10/10	Searching the literature; research proposals; conflicts of interest and commitment; collaborative research issues; mentor-student relationships and responsibilities; quasi-experimental research	31, 32, 11	6
10/11-10/17	Exploratory research, descriptive research	13, 14	7
10/19-10/24	Surveys & questionnaires; systematic reviews & meta-analyses	15,16	8
10/25-10/31	Descriptive analysis; using SAS or SPSS; data acquisition, management sharing and ownership	17, 30	
11/1-11/7	Inference, t-tests, analysis of variance	18, 19, 20,	9
11/8-11/14	Multiple comparison tests, nonparametric tests, correlation	21, 22, 23	10
11/16-11/21	Regression, chi-square, statistical measures of reliability	24, 25, 26	11
11/22-11/28	Statistical measures of validity, epidemiology, multivariate analysis	27, 28, 29	12
11/29-12/5	Research presentation and evaluation; peer review; responsible authorship.	33, 34	13
12/6-12/12	Exam 2 preparation		

Academic honesty
Academic dishonesty includes cheating, plagiarism and all forms of misrepresentation in academic work, and is unacceptable at The University of Maine. Examples of academic dishonesty include:

- having your notes of the class lecture pages and/or textbook open while you are taking a quiz
- checking a website while taking a quiz
- asking someone for help answering an assessment
- copying text directly from a website or article authored by someone else without enclosing the text in quotation marks and citing the source (I do check submissions using SafeAssignment for plagiarism)

You may use your notes for the two exams, but not for the quizzes. As stated in the University of Maine's online undergraduate "Student Handbook," plagiarism (the submission of another's work without appropriate attribution) and cheating are violations of The University of Maine Student Conduct Code.

Sexual Discrimination Reporting

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination involving members of the campus, your teacher is required to report this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For confidential resources on campus: Counseling Center: 207-581-1392 or Cutler Health Center: at 207-581-4000.

For confidential resources off campus: Rape Response Services: 1-800-310-0000 or Spruce Run: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For support services on campus: Office of Sexual Assault & Violence Prevention: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

Quizzes on Blackboard contain multiple-choice, matching, and short answer questions and should be submitted before the associated exam. All quizzes will be available from the start of the course, thus quizzes may be taken in advance of their deadline. The first exam covers all course material through Oct. 18. This exam will be available on the website once you have submitted all of the associated quizzes. You will receive an email notifying you of the exam's availability. Please email me your answers to the test no later than midnight on **Sunday, Oct. 25**.

The second exam is comprehensive but will emphasize lectures not covered on Exam 1. The exam will be made available after the associated lectures have been viewed. Please email me your answers no later than midnight **on Sunday Dec. 13**.

Grading and Course Expectations

Assessments & Assignments	Points per assessment
Chapter quizzes on Blackboard (13 total)	10
Statistical software analyses (4)	15
Take-home exams (2)	100
Research article evaluation (1)	10
Completion of CITI Protection of Human Subjects web training program plus elective (1)*	40
Discussion of research misconduct (1)	5
Blackboard discussion of Protection of Human Subjects or Research Animals (1)	5
Completion of CITI General RCR training (1)	40
RCR case study (1)	10
Blackboard discussion of case studies regarding research conflict (1)	5
Blackboard discussion of beneficial activities/behaviors between mentors and trainees.	5
Blackboard discussion of negative activities/behaviors between mentors and trainees. How could negative situations posted be improved or mitigated?	5
Completion of CITI UMS Financial Conflict of Interest Training (1)	10
Discussion of financial conflicts of interest on Blackboard (1)	5
Discussion of publication conflicts of interest. Suggest a means to prevent or repair each situation.	5
Discussion of peer review conflicts of interest; suggest a means to prevent or repair each situation.	5
Total Points	500

* Animal care training may be substituted with permission.

All times in this syllabus are Eastern Time. Discussion times may be mosdified based on student schedules. In the event of an extended disruption of normal classroom activities, the format for this course may be modified.

Schedule of Assessments. No credit will be given for late assignments.

Due Date	Assessment
9/20	Research article evaluation assignment- email to Dr. Camire by 10 p.m. Eastern time
9/27	Completion of Collaborative Institutional Training Initiative (CITI) web-based training on the protection of human subjects assignment and posting choices for Protection of Human Subjects training; online discussions of human subjects and research animals 8-9 p.m.
10/4	On-line quizzes for chapters 1-8 due by 10 p.m. Discussion of research misconduct 8-9 p.m.
10/11	Completion of CITI UMS Financial Conflict of Interest Training, CITI General RCR training & posting of research conflict case study. Discussion of fellow students' RCR case studies 8-9 p.m.
10/18	Discussion of positive activities between mentors and trainees. 8-9 p.m.
10/25	On-line quizzes for chapters 9- 11, (not 12), 13, 14, 31, and 32 due. Discussion of negative activities between mentors and trainees, 8-9 p.m.
10/25	Exam 1 – email answers to Dr. Camire by 10 p.m. Please note -submit all associated quizzes before attempting this exam.
11/8	On-line quizzes for chapters 15-20 due by 10 p.m.
11/15	SAS OR SPSS ANOVA homework – email answers and data file to Dr. Camire by 10 p.m. Earlier submissions are encouraged. Discussion of financial conflicts of interest 8-9 p.m.
11/22	SAS OR SPSS non-parametric and correlation assignments due by 10 p.m.
11/29	SAS OR SPSS regression assignment due by 10 p.m. Discussion of publication and collaboration conflicts of interest 8-9 p.m.
12/6	On-line quizzes for all other chapters by 10 p.m. Submit comments about other students' posts. Discussion of peer-review conflicts of interest 8-9 p.m.
12/13	Exam 2 – email answers to Dr. Camire by 10 p.m.

Grading

Grade	Points	Grade	Points
A	≥ 470	C+	385-399
A-	450-469	C	370-384
B+	435-449	C-	350-369
B	420-434	D	320-330
B-	400-419	F	<300