RECEIVED

TRIAL COURSE OR NEW COURSE PROPOSAL
(Attach copy of syllabus)

FEB 0 1 2016

Dean's Office

SUBMITTED BY:

Department	**Biology and Wildlife**	College/School	**College of Natural Science & Mathematics**
Prepared by	**Abel Bult-Ito**	Phone	**907-978-2169**
Email Contact	**abultito@alaska.edu**	Faculty Contact	**Abel Bult-Ito**

1. ACTION DESIRED (CHECK ONE):

Trial Course	**X**	New Course	

2. COURSE IDENTIFICATION:

Dept	**BIOL**	Course #	**394**	No. of Credits	**3**

Justify upper/lower division status & number of credits:	**This fully online biomedical research course will provide advanced knowledge of and experience with behavioral neuroscience research and the students will develop an advanced understanding of the scientific method and concepts in behavioral neuroscience. The time commitment of the students will be about 140 hours, which equates to three credit hours.**

3. PROPOSED COURSE TITLE: **Behavioral Neuroscience Research**

4. To be CROSS LISTED? YES/NO **No**   If yes, Dept: Course #

NOTE: Cross-listing requires approval of both departments and deans involved. Add lines at end of form for additional required signatures.

5. To be STACKED?* YES/NO **No**   If yes, Dept.   Course #

How will the two course levels differ from each other? How will each be taught at the appropriate level?:	N/A

* Use only one Format 1 form for the stacked course (not one for each level of the course!) and attach syllabi. Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi (undergraduate and graduate versions) will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online – see URL at top of this page.

6. FREQUENCY OF OFFERING: **Fall and Spring**

Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) — or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING
(Effective AY2015-16 if approved by 3/31/2015; otherwise AY2016-17)   **Fall 2016**

8. COURSE FORMAT:
NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, **any core course compressed to less than six weeks must be approved by the Core Review Committee.**

COURSE FORMAT: (check all that apply)		1		2		3		4		5	**X**	6 weeks to full semester

OTHER FORMAT (specify)	Full semester

Mode of delivery (specify lecture, field trips, labs, etc)	All online (140 hours total): Lecture-related activities (10 hours): • Six 1.5-hour introductory and background content modules • One hour on other course activities, including choosing a novel

experiment and providing class feedback.

Laboratory-related activities (85 hours):
- 23 hours of data collection and analysis for each of three separate experiments and 6 additional hours on an additional experiment using online behavioral video database, totaling 75 hours
- Four one-hour laboratory-training modules
- Four one-hour data analysis modules
- Three data interpretation modules (two hours)

Writing intensive activities (45 hours):
- Write a scientific research paper, including presentation and analysis of data collected and a peer-reviewed literature review

9. CONTACT HOURS PER WEEK:	**1**	LECTURE hours/weeks	**6**	LAB hours /week		PRACTICUM hours /week

Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/guidelines-for-computing-/ for more information on number of credits.

OTHER HOURS (specify type)	**3 hours/week for writing a scientific research paper**

10. <u>COMPLETE</u> *CATALOG DESCRIPTION including dept., number, title, credits, credit distribution, cross-listings and/or stacking (50 words or less if possible):*

Example of a <u>complete</u> description:

FISH F487 W, O Fisheries Management
    3 Credits Offered Spring
    Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. *Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; ENGL F414; FISH F425; or permission of instructor.* Cross-listed with NRM F487. (3+0)

BIOL F394 Behavioral Neuroscience Research
3 credits, Offered Fall and Spring
Online advanced biomedical research on compulsive-like mice, including data collection, data analysis, and interpretation of results. Learn about obsessive-compulsive disorder (OCD) in humans and how animal research has the potential to contribute to improving the human condition. Fulfills biological sciences capstone project requirement. Special fees apply. *Prerequisites: ENGL F11X; ENGL F211X or ENGL F213X; junior or senior standing; or permission of instructor.* Only available via eLearning and Distance Education. (1 + 6)

11. *COURSE CLASSIFICATIONS:* Undergraduate courses only. Consult with CLA Curriculum Council to apply S or H classification appropriately; otherwise leave fields blank.

H = Humanities		S = Social Sciences	

Will this course be used to fulfill a requirement for the baccalaureate core? **If YES, attach form.**	YES:	**X**	NO:	

IF YES, check which core requirements it could be used to fulfill:

O = Oral Intensive, **Format 6**		W = Writing Intensive, **Format 7**	**X**	X = Baccalaureate Core	

11.A *Is course content related to northern, arctic or circumpolar studies? If yes, a*   *"snowflake" symbol will be added in the printed Catalog, and flagged in Banner.*

YES		NO	**X**	

12. *COURSE REPEATABILITY:*

Is this course repeatable for credit?	YES		NO	**X**

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).	N/A

How many times may the course be repeated for credit?	N/A	**TIMES**

If the course can be repeated for credit, what is the maximum number of credit hours that may be earned for this course?	N/A	CREDITS
If the course can be repeated with _variable_ credit, what is the maximum number of credit hours that may be earned for this course?	N/A	CREDITS

13. GRADING SYSTEM: *Specify only one. Note: Changing the grading system for a course later on constitutes a Major Course Change – Format 2 form.*

LETTER:	X		PASS/FAIL:	

RESTRICTIONS ON ENROLLMENT (*if any*)

14. PREREQUISITES	Junior or Senior standing, or permission by instructor

These will be *required* before the student is allowed to enroll in the course.

15. SPECIAL RESTRICTIONS, CONDITIONS	Conditions that students will have to agree to be allowed to enroll (See course manual): • You agree that you will not make any course materials, including but not limited to lectures, data, etc., available to anyone else. Doing so will violate copyright law and will be prosecuted. • You agree that you do not object to the use of the OCD mice in the experiments performed in this course. • You agree to waive any ownerships rights to any of the data collected or findings in this course. • You agree to waive any rights to authorship related to any data or findings obtained during this course. • You agree that any findings related to the delivery of this course maybe be published. Neither your name nor any other personal data will be released in such publications. • High school students are encouraged to enroll to get an exiting first experience with college-level research that is scientifically cutting-edge. If less than 18 years of age, parental permission is required before enrollment is granted, you must be a junior or senior high school student, and have an overall and science high school GPA of at least 3.0 with biology and chemistry course grades of at least 3.0 • You will be required to successfully complete online institutional animal care and use committee (IACUC) training before you are given access to the behavioral data videos. You will be withdrawn from the course if you have not completed this training by the end of the second week, i.e., by 11:59pm Alaska standard time on Friday 16 September 2016.

16. PROPOSED COURSE FEES	$100	
Has a memo been submitted through your dean to the Provost for fee approval? **Yes/No**	Yes, approved for the same courses offered as individual study and special topics courses.	

17. PREVIOUS HISTORY

Has the course been offered as special topics or trial course previously? **Yes/No**	Yes

If yes, give semester, year, course #, etc.:	Fall 2015, BIOL F397 (3 credits) MORE Behavioral Neuroscience Research, UX1, CRN 80875, 4 enrolled. Spring 2016, BIOL F397 (3 credits) MORE Behavioral Neuroscience Research, UX1, CRN 39263, 5 enrolled Spring 2016, BIOL F397 (4 credits) MORE Behavioral Neuroscience Research, UX1, CRN 39265, one enrolled. Spring 2016, BIOL F393, (3 credits) MORE behavioral Neuroscience Research, CRN 39687, 5 enrolled.

18. ESTIMATED IMPACT
WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

The $100 research fee will cover the expenses related to animal care of the mice to be used in this course, supplies for the behavioral studies and the novel experiment the student will participate in as a group, and research equipment.

A distance delivery fee will cover the costs to have the course delivered online through *UAF eLearning and Distance Education. UAF eLearning and Distance Education* will request this fee.

Please see the Justification For Action Requested section below for additional details and context.

BIOL F394 tuition will cover instructional costs.

The behavioral studies and novel experiment will be conducted in Dr. Abel Bult-Ito's animal suite in the BiRD building. Therefore, no additional space or facilities are needed to offer this new course.

The instructor's workload is expected to include 3 workload units for the fall and 3 workload units for the spring semesters for this new BIOL F394 course.

19. LIBRARY COLLECTIONS
Have you contacted the library collection development officer (kljensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No	X	Yes		No textbook will be used for this course. Most peer-reviewed journals used in this course are available to the public on NIH PubMed Central. No other library resources will be needed for this new course.

20. IMPACTS ON PROGRAMS/DEPTS
What programs/departments will be affected by this proposed action?
Include information on the Programs/Departments contacted (e.g., email, memo)

I have offered this online research class for two semesters now and enrollment at the 300/400 level for this class has been increasing from 4 in fall 2015 to 13 in spring 2016. This course offers a certain level of flexibility when assignments need to be completed, i.e., generally within 5-7 days. In addition, the students do not have to be physically present in a laboratory or field site. This course is a W and fulfills the biological sciences capstone project requirement. As such it appears to fill a need of our biology majors, especially considering the fact that soon all biology majors (over 350) will need this capstone requirement to graduate. In addition, we do not have a lot of W options in the biological sciences curriculum.

21. POSITIVE AND NEGATIVE IMPACTS
*Please specify **positive and negative** impacts on other courses, programs and departments resulting from the proposed action.*

Positive impacts:
- Provide a fully online science research course that is the first of its kind for a 300-level course (other than the BIOL 393, 397, and 497 individual study and special topics course I have taught this academic year).
- Provide an advanced behavioral neuroscience research course for biology majors and majors in related fields, such as psychology, entirely online.
- This course can be petitioned to fulfill the W core requirement.
- This course can be used to fulfill the biological sciences capstone project requirement for majors.
- This course can be counted as a Physiology (List B) elective for the major in biological sciences.

Negative impacts:

- Although this course could take away time from my teaching of other majors courses (if the department needed me to do more of this), I should be able to continue to teach the majors course I am currently teaching, which is BIOL 417/617 Neurobiology.
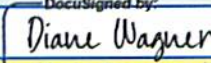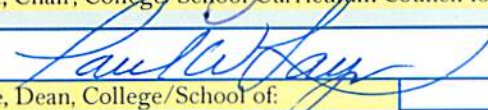
JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.

The enrollment in the same individual study and special topics course has gone up considerably from the fall 2015 (4) to the spring 2016 semester (13). Because it is online, is a W, and fulfills the biological sciences capstone project requirement it is becoming an important alternative for biology majors, and some majors in other disciplines, such as psychology.

This laboratory course is very rigorous. The students need to complete every module (18 total) successfully before they can move on to the next module. They have to answer all quiz questions correctly before they can move on from one submodule to the next (5-10 submodules) within each module. I include written content and a personal video (3-8 minutes each) in about 80% of all submodules, to over 100 videos in the entire course. Students have to post answers to discussion questions after each module and I grade those and provide feedback each week. Students have to submit data they collect from the assigned mouse videos about every three weeks and their submissions are checked for quality and appropriateness, and are graded. Students also do their own data analysis of the entire class dataset about every three weeks and these are also checked for quality and appropriateness, and are graded.

The students submit a research paper on the data they collected and analyzed. I grade two drafts before they submit their final paper. The paper grade is 50% of their final grade.

APPROVALS: Add additional signature lines as needed.

		Date	January 21, 2016
Signature, Chair, Program/Department of: *Diane Wagner*			Biology and Wildlife

		Date	1-29-16
Signature, Chair, College/School Curriculum Council for:			ONSM

		Date	2/1/16
Signature, Dean, College/School of:			CNSM

Offerings above the level of approved programs must be approved in advance by the Provost.

	Date	
Signature of Provost (if above level of approved programs)		

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

	Date	
Signature, Chair Faculty Senate Review Committee: ___Curriculum Review ___GAAC		
___Core Review ___SADAC		

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking)

	Date	
Signature, Chair, Program/Department of:		

	Date	
Signature, Chair, College/School Curriculum Council for:		

	Date	
Signature, Dean, College/School of:		

ATTACH COMPLETE SYLLABUS (as part of this application). This list is online at:
http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/uaf-syllabus-requirements/
The Faculty Senate curriculum committees will review the syllabus to ensure that each of
the items listed below are included. If items are missing or unclear, the proposed course
(or changes to it) may be <u>denied</u>.

Syllabus Checklist for all UAF courses
During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the
semester, this document will contain the following information (as applicable to the discipline):

1. Course information:
  ❑Title, ❑ number, ❑credits, ❑prerequisites, ❑ location, ❑ meeting time
(make sure that contact hours are in line with credits).

2. Instructor (and if applicable, Teaching Assistant) information:
  ❑ Name, ❑ office location, ❑ office hours, ❑ telephone, ❑ email address.

3. Course readings/materials:
  ❑ Course textbook title, ❑ author, ❑ edition/publisher.
  ❑ Supplementary readings (indicate whether ❑ required or ❑ recommended) and
  ❑ any supplies required.

4. Course description:
  ❑ Content of the course and how it fits into the broader curriculum;
  ❑ Expected proficiencies required to undertake the course, if applicable.
  ❑ Inclusion of catalog description is *strongly* recommended, and
  ❑ Description in syllabus must be consistent with catalog course description.

5. ❑ **Course Goals (general), and (see #6)**

6. ❑ **Student Learning Outcomes (more specific)**

7. Instructional methods:
  ❑ Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values
clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

8. Course calendar:
  ❑ A schedule of class topics and assignments must be included. <u>Be specific</u> so that it is clear that the instructor has thought this
through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give each lab a title that describes its
content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

9. Course policies:
  ❑ Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and
plagiarism/academic integrity.

10. Evaluation:
  ❑ Specify how students will be evaluated, ❑ what factors will be included, ❑ their relative value, and ❑ how they will be
tabulated into grades (on a curve, absolute scores, etc.) ❑ Publicize UAF regulations with regard to the grades of "C" and below <u>as
applicable</u> to this course. (Not required in the syllabus, but is a convenient way to publicize this.) Link to PDF summary of grading
policy for "C":
http://www.uaf.edu/files/uafgov/Info-to-Publicize-C_Grading-Policy-UPDATED-May-2013.pdf

11. Support Services:
  ❑ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

12. Disabilities Services: Note that the phone# and location have been **updated.** http://www.uaf.edu/disability/ The Office
of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to
the campus and course materials.
  ❑ State that you will work with the Office of Disabilities Services (208 WHITAKER BLDG, 474-5655)to provide
reasonable accommodation to students with disabilities.

5/21/2013

Behavioral Neuroscience Research
Course Manual

Compulsive-like (left) and non-compulsive like (right) OCD mice

BIOL 394 (3 credits)
University of Alaska Fairbanks
Fall 2016
Abel Bult-Ito

Table of Contents

1. Detailed Description of Behavioral Neuroscience Research

Welcome to Behavioral Neuroscience Research, a fully online special topics course! During this semester you will participate in biomedical research on mice, including data collection, data analysis, and interpretation of results. You will learn about obsessive-compulsive disorder (OCD) and other conditions in humans and how basic animal research has the potential to contribute to improving the human condition. You will be collecting data on three different behaviors using over 90 videos of individual mice per behavior, and an additional behavior with about 23 videos. You will write a research paper describing your results and do a thorough review of the peer-reviewed literature to put these results into the appropriate scientific context. This course can be petitioned for W credit.

The goals of this course are:
To offer a comprehensive undergraduate biomedical research experience to online students from Alaska, the US, and around the world that is an equivalent experience to students who work in the physical research laboratory, to expose students to the scientific research method with hands-on research activities, and to have students develop scientific writing skills.

The learning outcomes of this course are:
1. Learn how to do biomedical research, including data collection, data analysis, and interpretation of results.
2. Learn how to design an experiment that is scientifically justified, humane and ethical, and provides cutting-edge new knowledge to behavioral neuroscience.
3. Learn about the obsessive-compulsive disorder (OCD) condition in humans.
4. Learn about the anxiety and depression conditions in humans.
5. Learn how basic research on an animal model has the potential to contribute to improving the human condition.
6. Learn how to write a scientific research paper.
7. Complete writing intensive (W) requirements.

The OCD Mouse model you will be using:
The compulsive-like mouse model was developed from mouse strains artificially selected for high levels of nest-building behavior (compulsive-like big nest-builders; BIG1 and BIG3), low levels of nest-building behavior (non-compulsive-like small nest-builders; SMALL1 and SMALL3), and randomly-bred control mice (CONT1 and CONT3), with intermediate nest-building levels (Bult and Lynch, 2000). These mice show face and predictive validity for a compulsive-like phenotype, using behavioral assessments and pharmacological treatments (Greene-Schloesser et al., 2011).

References:
Bult A, Lynch CB 2000 Breaking through artificial selection limits of an adaptive

behavior in mice and the consequences of correlated responses. Behav Genet 30:193-206

Greene-Schloesser DM, Van der Zee EA, Sheppard DK, Castillo MR, Gregg KA, Burrow T, Foltz H, Slater M, Bult-Ito A 2011 Predictive validity of a non-induced mouse model of compulsive-like behavior. Behav Brain Res 221:55-62).

We will use a variety of approaches to accomplish the goals and learning outcomes, which are all available on the course online portal through BIOL 043 MORE Behavioral Neuroscience Research (CRN xxxxx). You need to register for this class and sign into the Canvas Network (https://canvas.instructure.com/enroll/xxxxxx):

1. **Content modules (about 9 hours).** We will discuss the format of the course, what you get out of the course, what is expected of you, and the ethics of using mice in research. In addition, we will discuss the background on the four mouse behaviors you will be researching and how these behaviors relate to obsessive-compulsive disorder (OCD), anxiety, and depression in humans.

2. **Laboratory training, data analysis, and data interpretation modules, Institution Animal Care and Use Committee (IACUC) training, and discussion boards (about 10 hours).** In these modules, you will receive detailed information on how the behavioral data of the OCD mice was obtained and how you are to collect your own data set using these behavioral videos, and how to analyze and interpret the data. In addition, you will learn about the ethical use of mice in research and how to handle the animals. You will also be asked to contribute to discussion boards related to the course content.

   You are required to successfully complete IACUC training during the first two weeks of the course. *You will be withdrawn from the course if you have not completed this training by the end of the second week, i.e., by 11:59pm on Friday 16 September 2016 Alaska standard time.*

3. **Collection of behavioral neuroscience research data (about 75 hours).** For each behavior, 11-16 mice from each of six mouse lines will be individually videotaped. You will collect your own dataset using all the available videos (over 90). For each of three behaviors, you will spend about 20-25 hours to collect and analyze the data and 5-6 hours for one additional behavior. Please be advised that you may be collecting several behavioral components for each behavior. This course is individualized to meet your needs and the research experiences you want to have. You get to choose the three behaviors from a set of 6 behaviors/experiments, including marble burying behavior, open field, forced swim test, elevated plus maze, and elevated zero maze of the six mouse lines, and elevated plus maze following treatment of the compulsive-like mice (BIG mice) with different doses of fluvoxamine, a drug used to treat OCD symptoms in humans. Please realize that collecting data in this format is very intensive, at a very high scientific level, and one of the most challenging laboratory exercises you have ever done. Take frequent short breaks so you can stay focused.

4. **Provide course feedback (about 1 hour).** You will be asked to choose a novel behavioral neuroscience experiment in collaboration with the other students in the course. You will be asked to choose what type of experimental manipulation to conduct and what behavior(s) of the OCD mice to test. This may include treatment with a drug and/or selection of which OCD mouse lines to use. The instructor will perform this experiment and videotape the procedures and the mice, so you can collect and analyze the data of this novel experiment. You will also be asked to provide a student opinion of instruction of the course, so we can improve it for future offerings.

5. **Write a scientific research paper describing your results and doing a thorough peer-reviewed literature review to put your research results in the appropriate scientific context (about 45 hours).** This paper will follow the format of a peer-reviewed neuroscience journal of your choice.

This manual will act as your guide for this course. In it is a description of the course requirements, module topics, and reading assignments, as well as general information to help you get the most out of this course. You should refer to it regularly throughout the semester.

Your minimal responsibilities for this course are defined in the Course Requirements section below. Be aware, however, that your successful completion of the course activities depends on how well you integrate all of the different kinds of information you receive from content modules, trainings, reading assignments, and data collection, analysis, and interpretation activities. Therefore, do not think of those assignments as separate entities but rather as parts of a jigsaw puzzle; together the complete concepts emerge.

Instructor
Abel Bult-Ito, Ph.D.
Professor of Neurobiology
Department of Biology & Wildlife
College of Natural Science and Mathematics
University of Alaska Fairbanks

Office:	Arctic Health Research Building, Room 260
Phone:	907-474-7158
E-mail:	abultito@alaska.edu
Mailbox:	Murie Building, Room 101 (Box 6100)
Office hours:	By appointment

Course Meeting Times and Locations
Content modules, laboratory trainings, and data sets will be available online. Generally, these will be made available on Monday 9am Alaska standard time and activities need to be completed by Friday 5pm (17:00) Alaska standard time.

Course Section
BIOL F394; xxx; CRN xxxxx; Prerequisite: UAF junior or senior undergraduate standing, or permission by instructor.

Course Blackboard Site and Canvas Network
http://classes.uaf.edu
https://canvas.instructure.com/courses/xxxxxx/

Disabilities Services
The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. We will closely work with the Office of Disabilities Services (208 Whitaker Building, 474-5655 or TTY at 474-1827; email: uaf-disabilityservices@alaska.edu) to provide reasonable accommodation to students with disabilities.

To ensure that everyone has equal opportunities to succeed in this course, please let me know if I need to accommodate any disabilities that you may have with assistance of Disability Services. Any information you provide will be held strictly confidential.

Support Services
Computer labs on the UAF main campus are available in 303 Irving I (please contact Biology and Wildlife Office to get access), MBS complex room 110, 319 Bunnell Building, and Rasmuson Library 404. You may be eligible for services from the Student Support Services, 514 Gruening Building, Phone: 474-6844, E-mail: trio.sss@alaska.edu, http://www.uaf.edu/sss/.

The Writing Center
The Writing Center is located in 801 Gruening and is a resource center providing a full range of dictionaries, handbooks, thesauruses, and it is an art gallery displaying work by students from the UAF Art Department. The Writing Center also features a Computer Laboratory. There is no charge for printing. For fall semester hours please contact the Writing Center at (907) 474-5314 or uaf-writing-center@alaska.edu.

2. Course Requirements
To do well in this course you must watch and participate in all course activities. Your grade will be based on the following criteria:

1. Content Modules   4%
2. Laboratory Training   4%
3. Data Analysis   4%
4. Data Interpretations (W: writing intensive)   5%
5. Collect Data   25%
6. Participate on Discussion Boards (W)   5%
7. Choosing Novel Experiment   1%
8. Complete Course Evaluation   2%
9. Scientific Research Paper (W)   50%

<div align="center">**Total: 100%**</div>

Watch Content Modules
Whether you watch the content modules will be monitored by the Canvas Network course management system and evaluated with short online quizzes. You cannot move forward to the next module without watching the video in its entirety and completing the quizzes for each content module correctly.

Watch Laboratory Training Modules
Whether you watch the laboratory and training modules will be monitored by the Canvas Network course management system and evaluated with short online quizzes. You cannot move forward to the next module without watching the video in its entirety and completing the quizzes for each laboratory training session module correctly.

Watch Data Analysis Modules
Whether you watch the data analysis modules will be monitored by the Canvas Network course management system and evaluated with short online quizzes. You cannot move forward to the next module without watching the video in its entirety and completing the quizzes for each data analysis session module correctly.

Watch Data Interpretation Modules (writing intensive)
Whether you watch the data interpretation modules will be monitored by the Canvas Network course management system and evaluated with short online quizzes. You cannot move forward to the next module without watching the video in its entirety and completing the quizzes for each data interpretation session module correctly.

Collect Data
Because this is a laboratory course, data collection comprises 25% of your final grade. Whether you watch the mouse videos will be monitored by the Canvas network course management system. You cannot move forward to the next module without watching each of the assigned mouse videos and uploading the data in the appropriate spreadsheet.

For three of the four behaviors, you will collect data of all animals from the six mouse strains. For some behaviors, you will collect data on several different components. To get credit for data collection for each behavior, all your data points need to be within an acceptable range, which will be defined for each behavior.

Participate on Discussion Boards (writing intensive)
Your active participation in this course is expected. For each module, we will have at least one discussion board to which you are expected to contribute constructively. To receive credit for this activity, you should have contributed constructively to all of the discussion boards.

Choosing a Novel Experiment
The instructor will design three novel experiments from which the students taking the

course will choose one. Each experiment will have received IACUC approval before the start of the semester. Whether you contribute to choosing the novel experiment on the OCD mice will be monitored by the Canvas Network course management system. To receive credit, you will have to complete the online survey(s) related to this activity.

Complete the Course Evaluation for BIOL 043
Receiving your feedback on the course is very important for improving the course for future offerings. Your feedback will be anonymous and only provided to the instructor after the grades have been posted. Please be advised that completion of the evaluation is mandatory, as you will not receive a grade if you do not complete it within one week of the end of the course.

Writing Intensive (W) Activities (60% of final grade)
Because this is a writing intensive (W) class, 60% of your final grade will be determined by the following writing intensive activities:

Write a Scientific Research Paper (50% of final grade)
Although in the BIOL 043 class the reading is not mandatory, you are required to read most of these papers and include them in your scientific research paper where appropriate. You are also expected to do additional literature searches to bring your paper to the highest scientific level possible. The paper should include a 200-word abstract and introduction, material and methods, results, and discussion sections, to a minimum length of 15 pages double spaced with 1 inch borders, and font size of 11 or 12, using Arial or Times fonts. The references cited section is in addition to this page minimum and should contain at least 30 peer-reviewed articles.
- The first draft of your paper is due on 14 November 2016 (15% of final grade). You will receive detailed feedback about content and organization. These are the most important components of your grade (75%), although I will also pay attention to tone, word choice, sentence structure, grammar, punctuation, and spelling (25%). I will also meet with you in person to discuss your first draft and how to improve it.
- The second draft of your paper is due 28 November 2016 (15% of final grade). You will receive detailed feedback as described for the first draft and you are encouraged to meet with me to discuss my feedback.
- Your final paper is due 12 December 2016 (20%) and will be graded as described for the first draft.

Data Interpretation (5% of final grade)
For each of four data interpretation modules (1.25% each), you will submit your interpretation of the results in writing after each data analysis module. You will be graded on content and organization (75%) and other writing characteristics (25%), and I will provide you with detailed feedback. This will help you write the discussion section of your scientific research paper.

Discussion Board Contributions (5% of final grade)
Each of your Discussion Board contributions will be reviewed on content and organization (75%) and other writing characteristics (25%). You will receive detailed

comments from me to improve your discussion board contributions.

Additional Writing Intensive Activities (0% of final grade)
You are encouraged to provide me with written sections of the scientific research paper before the first due date of 14 November. I will provide you with general feedback regarding content and organization.

Synchronous sessions (attend at least three sessions):
Session 1: Week 3: Tuesday 20 September 2016
Session 2: Week 6: Monday 10 October 2016
Session 3: Week 9: Tuesday 1 November 2016
Session 4: Week 13: Monday 21 November 2016
Session 5: Week 15: Monday 12 December 2016

Additional Activities
For your own literature research good sources for peer-reviewed literature include PubMed Central (http://www.ncbi.nlm.nih.gov/pmc/) and Web of Science/Knowledge (http://apps.webofknowledge.com).

Grading
The class will be graded on a straight percentage basis:

> 97.0-100% is an A+
> 93.0-96.9% is an A
> 90.0-92.9 is an A-
> 87.0-89.9 is a B+
> 83.0-86.9 is a B
> 80.0-82.9% is a B-
> 77.0-79.9 is a C+
> 73.0-76.9 is a C
> 70.0-72.9% is a C-
> 60.0-69.9% is a D
> < 60% is an F
> •

> I will not grade on a curve. Be aware that the grading scale above will be used without exception. Therefore, for example 89.9% will result in a final grade of B+ and 59.9% will result in a final grade of F. The 0.1% difference may seem like a small difference, but since it is based on 9+ separate grades, it truly reflects a level of performance that does not warrant a higher grade. Being on the right side of the cut-off is your responsibility!
> •

Part II: General Course Information

3. Outline of Content Modules, Laboratory Trainings, and Data Collections
(Subject to Change)

Week of the semester	Content Modules/Laboratory Trainings: Topics	Data Collections
1	Module 0: Format of the course; student expectations	Module 1: IACUC Training
2	Module 2: The ethics of using mice in research	IACUC Training
3	Module 3: Scientific background on OCD in humans and compulsive-like behavior in mice; nest-building data presentation	-
4	Module 4: Laboratory training session 1: Marble burying test (compulsive-like behavior) and Data collection 1	Marble burying test
5	Module 5: Data analysis session 1: Marble burying behavior	-
6	Module 6: Scientific background on anxiety behaviors in humans and mice	-
7	Module 7: Laboratory training session 2: Open field test (anxiety) and Data collection 2	Open field test
8	Module 8: Data analysis session 2: Open field behavior	-
9	Module 9: Scientific background on depression behaviors in humans and mice Module 10: Students choose one behavioral experiment from 3-4 possible experiments designed by the instructor	Provide feedback for the choice of a novel new experiment
10	*Thanksgiving break*	-
11	Module 11: Laboratory training 3: Forced swim test (depression) and Data collection 3	Forced swim test
12	Module 12: Data analysis session 3: Forced swim behavior Module 13: Scientific background on the students' chosen topic	-
13	Module 14: Laboratory training session 4: Behavioral test chosen by the students and Data collection 4: Behavioral test chosen by the students	Behavior chosen by the students
14	Module 15: Data analysis session 4: Behavioral test chosen by the students	-
15	Module 16: Interpretation of data session 1: Compulsive-like behaviors in the OCD mice Module 17: Interpretation of data session 2: Anxiety-like and depression-like behaviors in OCD mice Module 18: Interpretation of data session 3: How does it all fit together	Provide course feedback to improve future courses on behavioral neuroscience

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4. How to Get the Most Out of the Course

1. On average, you need to spend 9-10 hours per week on this course to be successful. Some weeks, you may only spend 3-5 hours on course activities, while other weeks this may be 20-25 hours, especially for data collection.

2. Do the assigned readings before watching the content modules. This will help you understand the module content material and see how a topic is going to be developed. Watching the content module prepared will also give you the necessary background to enjoy and absorb the content.

3. Establish a schedule of activities that includes some time set-aside for review. For example, as we discuss the results of the open field test, review the data analysis and interpretation of the marble-burying test, so you can put the new information into the proper context.

4. Don't be embarrassed or afraid to admit that you are having difficulty. We should all work together to see that everyone learns. Please contact me because I want this course to be a successful learning experience for everyone. I have office hours because I want to help you succeed; use me!

5. Ask questions. This is the best way you have for clearing up confusing points and misunderstandings and to go beyond what we talked about in content and laboratory modules. Learning to ask questions is the first skill that a scientist has to develop in order to find meaningful answers.

6. Have fun! Nothing works better than enjoying what you are doing. Please let me know at any time what I can do to improve the course.

5. Students' Rights and Responsibilities

The university subscribes to principles of due process and fair hearings as specified in the "Joint Statement on Rights and Freedoms of Students." This document can be found in the Division of Student Services. You are encouraged to read it carefully.

Most students adjust easily to the privileges and responsibilities of university citizenship. The university attempts to provide counsel for those who find the adjustment more difficult. UAF may terminate enrollment or take other necessary and appropriate action in cases where a student is unable or unwilling to assume the social responsibilities of citizenship in the university community.

STUDENT CODE OF CONDUCT
UAF students are subject to the Student Code of Conduct. In accordance with board of regents' policy 09.02.01, UAF will maintain an academic environment in which freedom to teach, conduct research, learn and administer the university is protected. Students

will benefit from this environment by accepting responsibility for their role in the academic community. The principles of the student code are designed to encourage communication, foster academic integrity and defend freedoms of inquiry, discussion and expression across the university community.

UAF requires students to conduct themselves honestly and responsibly, and to respect the rights of others. Conduct that unreasonably interferes with the learning environment or violates the rights of others is prohibited. Students and student organizations are responsible for ensuring that they and their guests comply with the code while on property owned or controlled by the university or at activities authorized by the university.

The university may initiate disciplinary action and impose disciplinary sanctions against any student or student organization found responsible for committing, attempting to commit or intentionally assisting in the commission of any of the following prohibited forms of conduct:

a. Cheating, plagiarism or other forms of academic dishonesty
b. Forgery, falsification, alteration or misuse of documents, funds or property
c. Damage or destruction of property
d. Theft of property or services
e. Harassment
f. Endangerment, assault or infliction of physical harm
g. Disruptive or obstructive actions
h. Misuse of firearms, explosives, weapons, dangerous devices or dangerous chemicals
i. Failure to comply with university directives
j. Misuse of alcohol or other intoxicants or drugs
k. Violation of published university policies, regulations, rules or procedures
l. Any other actions that result in unreasonable interference with the learning environment or the rights of others.

This list is not intended to define prohibited conduct in exhaustive terms, but rather offers examples as guidelines for acceptable and unacceptable behavior.

Honesty is a primary responsibility of you and every other UAF student. The following are common guidelines regarding academic integrity:

1. Students will not collaborate on any quizzes, in-class exams, or take-home exams that contribute to their grade in a course, unless the course instructor grants permission. Only those materials permitted by the instructor may be used to assist in quizzes and examinations.
2. Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses, and other reports.
3. No work submitted for one course may be submitted for credit in another course

without the explicit approval of both instructors.

Alleged violations of the Code of Conduct will be reviewed in accordance with procedures specified in regents' policy, university regulations and UAF rules and procedures. For additional information and details about the Student Code of Conduct, contact the dean of students or visit www.alaska.edu/bor/.

STUDENT BEHAVIORAL STANDARDS
Education at the university is conceived as training for citizenship as well as for personal self-improvement and development. Generally, UAF behavioral regulations are designed to help you work efficiently in courses and live responsibly in the campus environment. They are not designed to ignore your individuality but rather to encourage you to exercise self-discipline and accept your social responsibility. These regulations, in most instances, were developed jointly by staff and students. Contact the dean of students for more information.

6. Conditions You Agree To When Taking This Course

1. You agree that you will not make any course materials, including but not limited to content modules, data, data videos, etc., available to anyone else. Doing so will violate copyright law and will be prosecuted.
2. You agree that you do not object to the use of the OCD mice in the experiments performed in this course.
3. You agree to waive any ownerships rights to any of the data collected or findings in this course.
4. You agree to waive any rights to authorship related to any data or findings obtained during this course.
5. You agree that any findings related to the delivery of this course maybe be published. Neither your name nor any other personal data will be released in such publications.
6. You will be required to successfully complete online institutional animal care and use committee (IACUC) training before you are given access to the behavioral data videos. You will be withdrawn from the course if you have not completed this training by the end of the second week, i.e., by 11:59pm on Friday 16 September 2016 Alaska standard time.