

**1. General Information**

1a. Submitted by the College of: MEDICINE

Date Submitted: 11/27/2013

1b. Department/Division: Anatomy &amp; Neurobiology

1c. Contact Person

Name: Luke Bradley

Email: lhbradley@uky.edu

Phone: 3-1826

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Specific Term/Year<sup>1</sup> Fall 2015

1e. Should this course be a UK Core Course? No

**2. Designation and Description of Proposed Course**

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: ANA 442

2c. Full Title: Molecular and Cellular Neurobiology

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 3

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

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SENATE COUNCIL

- 2j. Course Description for Bulletin: ANA 442 Molecular and Cellular Neurobiology (3): This 3 credit hour course is designed to be an introductory course for undergraduate students aimed at providing an overview of major principles and techniques associated with cellular and molecular neurobiology. Subject matter is intended to range from molecular mechanisms underlying neuronal signaling and cellular function to how these properties are invoked across simple networks, neural systems and behavior.
- 2k. Prerequisites, if any: BIO 152 or an equivalent; BIO 302 or PSY 312, or consent of course director.
- 2l. Supplementary Teaching Component:
3. Will this course taught off campus? No  
If YES, enter the off campus address:
4. Frequency of Course Offering: Spring,  
Will the course be offered every year?: Yes  
If No, explain:
5. Are facilities and personnel necessary for the proposed new course available?: Yes  
If No, explain:
6. What enrollment (per section per semester) may reasonably be expected?: 80
7. Anticipated Student Demand  
Will this course serve students primarily within the degree program?: Yes  
Will it be of interest to a significant number of students outside the degree pgm?: Yes  
If Yes, explain: [var7InterestExplain]
8. Check the category most applicable to this course: Traditional – Offered in Corresponding Departments at Universities Elsewhere,  
If No, explain:
9. Course Relationship to Program(s).  
a. Is this course part of a proposed new program?: Yes  
If YES, name the proposed new program: Neuroscience Major  
b. Will this course be a new requirement for ANY program?: Yes  
If YES, list affected programs: Neuroscience Major
10. Information to be Placed on Syllabus.  
a. Is the course 400G or 500?: No  
b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from **10.a** above) are attached: Yes

## Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1. How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4. Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5. How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6. How do course requirements ensure that students make appropriate use of learning resources?

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8. How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)?

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10. Does the syllabus contain all the required components? NO

11. I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|DONGASH|Don M Gash|ANA 442G NEW Dept Review|20131014

SIGNATURE|MRWH224|Melissa R Wilkeson|ANA 442G NEW College Review|20131203

SIGNATURE|DONGASH|Don M Gash|ANA 442 NEW Dept Review|20131107

SIGNATURE|MRWH224|Melissa R Wilkeson|ANA 442 NEW College Review|20131211

SIGNATURE|DONGASH|Don M Gash|ANA 442 NEW Dept Review|20131201

SIGNATURE|MRWH224|Melissa R Wilkeson|ANA 442 NEW College Review|20131211

SIGNATURE|JMETT2|Joanie Ett-Mims|ANA 442 NEW Undergrad Council Review|20140318

Courses	Request Tracking
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### New Course Form

<https://myuk.uky.edu/sap/bc/soap/rfc?services=>

[Open in full window to print or save](#)

Generate R

**Attachments:**

Upload File

	ID	Attachment
Delete	3233	ANA 442 syllabus-03-13-2014.pdf
Delete	3234	ANA 442 explanation from Professor Bradley.pdf

Select saved project to retrieve...

(\*denotes required fields)

**1. General Information**

a. \* Submitted by the College of:  Submission Date:

b. \* Department/Division:

c.

\* Contact Person Name:  Email:  Phone:

\* Responsible Faculty ID (if different from Contact):  Email:  Phone:

d. \* Requested Effective Date:  Semester following approval OR  Specific Term/Year

e.

Should this course be a UK Core Course?  Yes  No

If YES, check the areas that apply:

Inquiry - Arts & Creativity  Composition & Communications - II

Inquiry - Humanities  Quantitative Foundations

Inquiry - Nat/Math/Phys Sci  Statistical Inferential Reasoning

Inquiry - Social Sciences  U.S. Citizenship, Community, Diversity

Composition & Communications - I  Global Dynamics

**2. Designation and Description of Proposed Course.**

a. \* Will this course also be offered through Distance Learning?  Yes  No

b. \* Prefix and Number:

c. \* Full Title:

d. Transcript Title (if full title is more than 40 characters):

e. To be Cross-Listed <sup>2</sup> with (Prefix and Number):

f. \* Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours<sup>3</sup> for each meeting pattern type.

<input type="text" value="3"/> Lecture	<input type="text"/> Laboratory <sup>1</sup>	<input type="text"/> Recitation	<input type="text"/> Discussion
<input type="text"/> Indep. Study	<input type="text"/> Clinical	<input type="text"/> Colloquium	<input type="text"/> Practicum
<input type="text"/> Research	<input type="text"/> Residency	<input type="text"/> Seminar	<input type="text"/> Studio
<input type="text"/> Other	If Other, Please explain: <input type="text"/>		

g. \* Identify a grading system:

Letter (A, B, C, etc.)

Pass/Fail

Medicine Numeric Grade (Non-medical students will receive a letter grade)

Graduate School Grade Scale

h. \* Number of credits:

i. \* Is this course repeatable for additional credit?  Yes  No

If YES: Maximum number of credit hours:

If YES: Will this course allow multiple registrations during the same semester?  Yes  No

## j. \* Course Description for Bulletin:

ANA 442 Molecular and Cellular Neurobiology (3): This 3 credit hour course is designed to be an introductory course for undergraduate students aimed at providing an overview of major principles and techniques associated with cellular and molecular neurobiology. Subject matter is intended to range from molecular mechanisms underlying neuronal signaling and cellular function to how these properties are invoked across simple networks, neural systems and behavior.

## k. Prerequisites, if any:

BIO 152 or an equivalent; BIO 302 or PSY 312, or consent of course director.

l. Supplementary teaching component, if any:  Community-Based Experience  Service Learning  Both3. \* Will this course be taught off campus?  Yes  No

If YES, enter the off campus address: \_\_\_\_\_

## 4. Frequency of Course Offering.

a. \* Course will be offered (check all that apply):  Fall  Spring  Summer  Winter

b. \* Will the course be offered every year?  Yes  No

If No, explain: \_\_\_\_\_

5. \* Are facilities and personnel necessary for the proposed new course available?  Yes  No

If No, explain: \_\_\_\_\_

## 6. \* What enrollment (per section per semester) may reasonably be expected? 80

## 7. Anticipated Student Demand.

a. \* Will this course serve students primarily within the degree program?  Yes  No

b. \* Will it be of interest to a significant number of students outside the degree pgm?  Yes  No

If YES, explain: \_\_\_\_\_

Available to students outside of the neuroscience major that have met the prerequisites.

## 8. \* Check the category most applicable to this course:

Traditional – Offered in Corresponding Departments at Universities Elsewhere

Relatively New – Now Being Widely Established

Not Yet Found in Many (or Any) Other Universities

## 9. Course Relationship to Program(s).

a. \* Is this course part of a proposed new program?  Yes  No

If YES, name the proposed new program: \_\_\_\_\_

Neuroscience Major

b. \* Will this course be a new requirement <sup>2</sup>for ANY program?  Yes  No

If YES <sup>2</sup>, list affected programs: \_\_\_\_\_

Neuroscience Major

## 10. Information to be Placed on Syllabus.

a. \* Is the course 400G or 500?  Yes  No

If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in 10.b. You must include: (i) identify additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR

b.  \* The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable above) are attached.

- ⓘ Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
- ⓘ The chair of the cross-listing department must sign off on the Signature Routing Log.
- ⓘ In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, is two hours per week for a semester for one credit hour. (from SR 5.2.1)
- ⓘ You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.
- ⓘ In order to change a program, a program change form must also be submitted.

Rev 8/09

Submit as New Proposal    Save Current Changes

## ANA 442 Syllabus

### ANA 442 Molecular and Cellular Neurobiology

**Instructor:** Dr. Luke H. Bradley  
**Office Address:** MN222 Chandler Medical Center (Anatomy & Neurobiology)  
**Email:** [lhbradley@uky.edu](mailto:lhbradley@uky.edu)  
**Office Phone:** 323-1826

**Office hours:** TBD, by appointment.

**Meeting Dates/Times:** TBD

**Course Description:** This 3 credit hour course is designed to be an introductory course for undergraduate students aimed at providing an overview of major principles and techniques associated with cellular and molecular neurobiology. Subject matter is intended to range from molecular mechanisms underlying neuronal signaling and cellular function to how these properties are invoked across simple networks, neural systems and behavior.

**Prerequisites:** BIO 152 or an equivalent; BIO 302 or PSY 312, or consent of course director.

#### **Student Learning Outcomes:**

After completing this course, the student will be able to:

1. Describe the molecular mechanisms by which ions are transported across cellular membranes and their significance in neuron physiological processes.
2. Describe the molecular mechanisms and regulation of neurotransmitter release in synaptic transmission.
3. Integrate and articulate the molecular and cellular relationships that govern neuronal growth, maintenance, and functioning in numerous systems of the healthy brain.

**Required Materials:** Text book: From Molecules to Networks, by Byrne and Roberts, 2<sup>nd</sup> edition, 2009 Academic Press, ISBN# 978-0123741325.

#### **Description of Course Activities and Assignments**

Course activities will include three in-class exams, and a final exam.



## ANA 442 Syllabus

### **Course Assignments**

3 Exams at 100 points each (each 25% of final grade)

1 Final Exam at 100 points (25% of final grade)

### **Summary Description of Course Assignments**

Three fifty minute, closed book examinations and a non-cumulative, closed-book final will be given. Exams will be multiple choice and short answer and will cover the material presented during lecture and readings from the assigned text book. Each exam will be graded out of 100 points and will contribute 25% of the student's final grade.

### **Course Grading**

Grading scale:

A 100-90.0%

B 89.9-80.0%

C 79.9-70.0%

D 69.9-60.0%

E below 60.0%

Extra credit assignments are NOT available.

Dr. Bradley reserves the option of curving the final grades.

**Final Exam Information:** Time, date, location to be determined by the University Registrar

**Mid-term Grade:** Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (<http://www.uky.edu/Registrar/AcademicCalendar.htm>).

### **Course Policies:**

#### **Attendance Policy:**

Attendance is considered mandatory. Students are responsible for all lecture content.

#### **Excused Absences:**

Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor(s) in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information

## ANA 442 Syllabus

regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

### **Verification of Absences:**

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

### **Make-Up Opportunities:**

Students missing any graded work due to an excused absence bear the responsibility of informing the Instructor of Record about their excused absence within one week following the period of the excused absence (except where prior notification is required), and of making up the missed work. The Instructor of Record shall give the student an opportunity to make up the work and/or the exams missed due to an excused absence, and shall do so, if feasible, during the semester in which the absence occurred. The student shall be given the opportunity to make up exams missed due to an excused absence during the semester in which the absence occurred, if feasible. In those instances where the nature of the course is such that classroom participation by the student is essential for evaluation, the instructor shall, if feasible, give the student an opportunity to make up the work missed during the semester in which the absence occurred.

### **Academic Integrity:**

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

*Plagiarism and cheating are serious breaches of academic conduct.* Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It

## ANA 442 Syllabus

is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of *Student Rights and Responsibilities* (available online) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. The process of making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

***Please note:*** Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

### **Accommodations due to disability**

If you have a documented disability that requires academic accommodations,) please see the course instructor(s) as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide the instructor(s) with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities. This letter must be presented

## **ANA 442 Syllabus**

at least 24 hours in advance of the first exam in the course the students plans to request accommodations for.

### **Office Hours**

Dr. Bradley will be available for consultation by appointment. Students are encouraged to consult with all participating faculty.

### **Regrading Policy**

Examinations can be submitted for a re-evaluation if the student feels that they can justify their position. Resubmissions must be accompanied by a written explanation of the perceived discrepancy. Upon resubmission, the entire examination may be subjected to a re-evaluation and all questions therein will be regarded at the instructor's discretion. Exams that a student submits for regarding must be presented to the instructor who wrote the exam question within one week (7 days) of the exam's return.

### **Classroom Behavior, Decorum and Civility**

Please be respectful to others in the class and engage in civil discourse when we discuss topics that have a diversity of perspectives. Please minimize distractions by not reading newspapers or carrying on conversations. Turn mobile phones off during class. Please help me maintain the most courteous environment by using a little peer pressure if necessary. Thank you.

## ANA 442 Syllabus

### Tentative Course Schedule

Dates	Topic
	1. Introduction to course and review of basic concepts.
	2. Neuroanatomy
	3. Cells of the Nervous System
	4. Ionic Currents/Action Potentials 1
	5. Ionic Currents/Action Potentials 2
	6. Electrical Signaling 1
	7. Electrical Signaling 2
	8. Ion Channels & Transporters
	9. Ion Channels & Transporters
	10. Synaptic Transmission 1
	11. Synaptic Transmission 2
	<b>Exam 1 (Lectures 1-11)</b>
	12. Neurotransmitters & Receptors
	13. Neurotransmitters & Receptors
	14. Intracellular Signaling
	15. Short-term Plasticity
	16. Long-term Plasticity
	17. Somatic sensory system 1
	18. Somatic sensory system 2
	<b>Exam #2 (Lectures 12-18)</b>
	19. Vision 1

## *ANA 442 Syllabus*

	20. Vision 2
	21. Auditory System
	22. Vestibular System
	23. Motor circuits 1
	24. Motor circuits 2
	25. Basal Ganglia – Structure & Function
	26. Basal Ganglia – Disorders
	27. Cerebellum – Structure & Function
	28. Cerebellum - Disorders
	<b>Exam #3 (Lectures 23-28)</b>
	29. Neural Circuits - Construction
	30. Neural Circuits - Manipulation
	31. Stem Cells & Regeneration
	32. Stem Cells & Regeneration
	33. Neurotrophic Factors 1
	34. Neurotrophic Factors 2
	<b>Final Exam (Lectures 29-34)</b>

## Ett, Joanie M

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**From:** Bradley, Luke H  
**Sent:** Thursday, March 13, 2014 12:25 PM  
**To:** Ett, Joanie M  
**Subject:** RE: ANA 442 - UGC review

Dear Joanie –

I left a message at the number below to clear up some of these questions.

- 1) It was decided to drop the "G" in the course number, making it an undergraduate class (hence the syllabus is correct). I was under the impression that this was re-entered into eCATS (the ANA442G course was dropped, ANA442 added). This sounds like an artifact from the original submission. I am not clear on how to revise this and will need your guidance.
- 2) Yes, I can revise this days/times in the syllabus. Where do I submit the revised syllabus?

Thanks,

Luke

LUKE H. BRADLEY, Ph.D.  
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Molecular & Cellular Biochemistry,  
Parkinson's Disease Translational Center of Excellence  
University of Kentucky College of Medicine  
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Lexington, KY 40536-0298

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