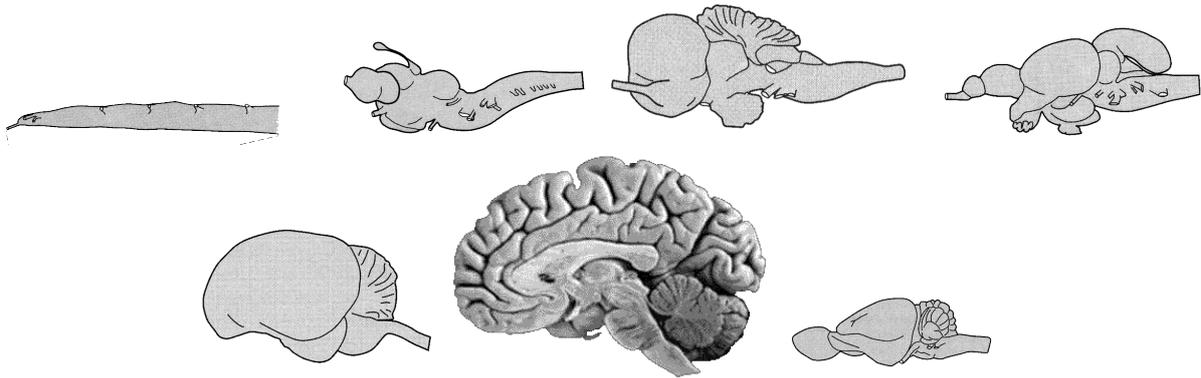


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## BIO 495 Seminar: Comparative Neuroscience

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### Course Information

**Course:** BIO 495: Comparative Neuroscience  
**Lecture:** T 2:00 – 2:50pm  
**Place:** DO 226

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### Instructor

**Asst/Prof. Kara E Yopak**  
**Office:** CMS 2332  
**Email:** [yopak@uncw.edu](mailto:yopak@uncw.edu)  
**Office Hours:** by email appointment

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### Course Overview

The goal of this course is to give you experience in critically evaluating the primary literature, developing and giving an oral presentation of a research paper, gaining experience in scientific writing by writing a literature review of a chosen topic, and having the chance to both receive and engage in peer review.

This course is designed to challenge you to question the primary literature, gain working knowledge of neuroanatomy across a range of vertebrate groups, as well as question some of your own preconceived notions about “intelligence”. Through your reading and class discussions, you will gain an understanding of major ideas in comparative neurobiology and how it pertains to cognition, including major structural components of the brain and evolutionary changes in brain size, brain region size, and sensory systems. You will be asked to consider the central nervous system as it pertains to all organisms, and question a “top down” approach when we assess the evolution of cognitive capacity.

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### Learning Outcomes

Throughout the unit, you will need to access, evaluate, critique, synthesize and understand the primary literature and gain an understanding of how data is analyzed in a comparative context. Finally, you will be guided on how to communicate this information clearly and concisely (both in written reports and through oral presentations) to demonstrate comprehension of the subject.

On completion of this unit you should be able to:

1. understand major ideas in comparative neuroscience
2. access and interpret the primary literature in comparative neurobiology
3. critically evaluate evidence (data and primary literature)
4. gain experience in peer-review
5. communicate clearly and concisely in an oral presentation and a literature review, demonstrating your comprehension of your chosen topic

## Unit Structure

This unit will begin with a few lectures and assigned readings introducing you to current research themes in comparative neuroscience, with a view towards producing an individual literature review (2000-3000 words) and a short group PowerPoint (PPT) presentation (20 minutes). The literature review exercise will assess your individual knowledge of a key area of neuroscience, while the PPT exercise will assess your ability to communicate a research paper (within your chosen topic) to the class at large. In both cases, we test your abilities to communicate effectively (i.e. clearly *and* concisely).

Below is an outline of the structure for this unit. This schedule is tentative and subject to change depending on University closures, the progress of the class, and the discretion of the instructor.

### Schedule Overview (Check Blackboard for updates)

Class	Date	Activity	Topic
1	T 1/9	Welcome and lecture	Introductions + Intro to Brain Evolution
2	T 1/16	Lecture + reading assignment (Willernet, 2013)	Is Bigger Always Better? + Start to investigate your research topic
3	T 1/23	Discussion	Student-lead evaluation of Willernet (2013); assign groups for research topic
4	T 1/30	Discussion	Importance of Peer Review, Justification + pdf of <b>at least one</b> chosen paper on your research topic due, + Start to work on outline in pairs
5	T 2/6	Discussion	<b>Outlines of Lit Reviews due</b> + Presentation Info
6	T 2/13	Lecture + Discussion	Giving a Good Talk + Lightening talk assignments
7	T 2/20	Discussion	Assign Peer Reviews, <b>Draft of Literature Review Due</b>
8	T 2/27	Talk Workshop	Work on your presentation in class with your group
	M 3/5 – F 3/9	--	No Classes – Spring Break
9	T 3/13	5-minute lightning talks	<b>Everyone's Lightning Talks due</b> + peer review
10	T 3/20	5-minute lightning talks	+ peer review
	<b>F 3/23</b>	<b>IMPORTANT</b>	<b>Final Literature Reviews Due</b>
11	T 3/27	Discussion	TBD
12	T 4/3	FINAL PRESENTATIONS	<b>Everyone's Presentations due</b> + Peer Review
13	T 4/10	FINAL PRESENTATIONS	+ Peer Review
14	T 4/17	FINAL PRESENTATIONS	+ Peer Review
15	T 4/24	FINAL PRESENTATIONS	+ Peer Review & Course reflection

## Assignments Overview + Due Dates (Check Blackboard for updates)

Assignment	Due Date
Daily Participation & Attendance	Every class
Assigned reading – come to class with 2-3 discussion points based on the paper you read (Willernet, 2003).	1/23
Written justification + pdf of <b>at least one</b> research paper on your Literature Review Topic	1/30
Select your Research Topic (for Lit Review) + draft an Outline	2/6
Draft of Literature Review	2/20
Peer Review of another student's lit review – submit marking sheet (in class)	2/20 (in class)
Copy of 5-Minute Lightening Talk (pdf or ppt)	3/13 – by start of class
Presentation of 5-Minute Lightening Talk	3/13 or 3/20
Peer Review of all Lightening Talks – submit marking sheets in class	3/13, 3/20
Final Literature Review (note this is <b>not</b> a class day)	3/23
Copy of Oral Presentation (pdf or ppt) – <b>group</b> submission	4/3 – by start of class
Final Oral Presentation	4/3, 4, 10, 4/17, or 4/24
Peer Review of all oral presentations – submit marking sheets in class	4/3, 4, 10, 4/17, & 4/24

## Assessments

Students will choose an appropriate topic to research on their own, after the instructor has approved it. Assessment for this course will comprise individual participation in class discussion, a group PowerPoint presentation on the designated topic, and an individual report in the form of a literature review. The unit is assessed as follows:

Activity	Description	Percentage of Final Grade
<b>Literature Review</b>	Justification + Outline	5%
	Draft Literature Review	10%
	Final Literature Review	20%
<b>Presentations</b>	5-minute Lightening Talk	10%
	Final Presentation (group)	25%
<b>Participation</b>	Peer Review	15%
	Class Participation	15%
<b>TOTAL</b>		<b>100%</b>

The final grade is based upon the percentage scores below. The percentages required for each grade may be changed at the discretion of the instructor.

Letter Grade	Percentages
A	94-100%
A-	90-93%
B+	87-89%
B	84-86%
B-	80-83%
C+	77-79%
C	74-76%
C-	70-73%
D+	67-69%
D	64-66%
D-	60-63%
F	< 60%

## Participation

What you gain from this class will come from digging into the primary literature, engaging in the peer-review process, and asking difficult questions of the field (and of each other) during in class discussions. This all stems from participation. Students are required to participate in class through delivery, discussion, and evaluation of oral presentations and course topics. You are expected to come to class prepared with talking points on your reading assignment, your chosen topic, or an evaluation of work assigned.

## Lightning Talks (assessed as an individual)

Once you have chosen your topic (and it has been approved), you will be tasked with giving a 5-minute "lightening talk" to the class. The goal of this exercise is to get comfortable with presenting findings in front of an audience. This should be only 3-5 slides where you "pitch" a paper related to your topic as a case study for the broader topic that will be the subject of your lit review. In this short presentation, you will describe the outline of your research talk, including the title, topic, and major point of interest. It should be brief but engaging, framing your topic in the form of a question and providing us with the take home message. Your lightening talk will be reviewed by your peers (and you will review others), in order to provide constructive feedback. This feedback will help you as you work towards your final presentation. You will also submit this talk (pdf or ppt) ahead of time via Blackboard (The filename should start with your last name).

## Final Presentations (assessed as a group)

In a group of 2 or 3, you will present a comprehensive talk on your chosen research paper, building on your lightening talk. This should give us an overview of the field, discuss the goals of the paper, the methods used, the main results, and discuss their findings. Topics must be framed in the form of a question. It is not enough to give a 20-minute summary of the paper you read. You must clearly state the hypothesis and then present evidence from the literature supporting that hypothesis. **THIS IS VERY IMPORTANT – please ask if you have any questions.**

You may divide up the talk any way you wish within your group, but the overall time limit is 20 minutes, including 3-5 minutes for questions (Note a group of 3 must give a 30-minute presentation). *Everyone must speak for part of the presentation.* You will submit your talk (pdf or ppt) ahead of time via BlackBoard (The filename should start with your last name). During the symposium, when you are not presenting, you will be expected to be attentive, prepare at least one question, and fill out a peer review form for each talk, providing constructive feedback.

## Literature Review (assessed as an individual)

Although you are expected to work collaboratively with your fellow group member(s) to develop the ideas that will form your Final Presentation, you will write individual Literature Reviews (i.e. grades to go individuals, not groups). Your review should be between 2000-3000 words (not including references, figures, tables etc.) and should include only citations to relevant primary research papers, review articles and books/chapters (i.e. *peer-reviewed* literature).

Each review should address a specific question or topic identified earlier in the class. This can be any topic you choose in the area of brain evolution and cognition (approved ahead of time by the instructor). Ultimately, I am looking for tightly focused and well structured review that demonstrates your understanding of the topic.

## Course Policies

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### Classroom Environment

I encourage participation and open discussion during class to facilitate learning. This can only occur in environment that encourages and promotes inclusiveness, mutual respect, acceptance,

and open-mindedness among students and instructors. The values endorsed in the [Seahawk Respect Compact](#) will be upheld in the classroom, and any students deviating from this code will be required to leave.

### **Attendance**

Because this is a small class that is based around discussion and participation (worth nearly 1/3 of your final grade), attendance is essential. Regular attendance will keep you up to date on class announcements, provide you with opportunities to actively engage with me and your fellow classmates, and lay the foundation upon which you will prepare for your final presentation and literature review.

### **Blackboard + Email**

It is critical to *actively check* your UNCW e-mail account as part of this course. Students are also expected to log into the unit's BlackBoard site regularly. BlackBoard is used to post important information such as announcements, notes, and journal articles. It is your responsibility to let me know immediately if you are having trouble receiving class e-mails or accessing BlackBoard information

### **Final Presentations**

Make-up presentations and extensions to your Literature Review deadline will **NOT** be given without an acceptable and documentable excuse, such as a medical or family emergency. This will require a written reason from a University Official or a licensed medical practitioner, stating why you are unable to be present. If you have a planned absence on official university business (and tell me ahead of time), have the appropriate University Official contact me and confirm your absence, and then communicate with me in advance to arrange for a make-up. Other reasons, including being out of town, oversleeping, a cold, or forgetfulness are not considered acceptable excuses.

### **Cell Phones and Other Electronic Devices**

This class is all about engagement and being present - please turn off cell phones and all other electronic devices during class.

### **Disabilities**

If you are a person with a disability and anticipate needing accommodations of any type for this course, you must first notify Disability Services (<http://uncw.edu/disability/about/index.html>) in DePaolo Hall, provide the necessary documentation of the disability, and arrange for the appropriate authorized accommodations. Once these accommodations are approved, please identify yourself to me so that we can implement these accommodations.

### **Academic Dishonesty**

Academic dishonesty will not be tolerated. As a student at UNCW you are bound by the [Student Academic Honor Code](#). Violations of the Student Code of Conduct are subject to university discipline. Action can include assignment of a grade of "0" on the appropriate assignment, assignment of an "F" grade in the course, or referral to the College of Arts and Sciences for more severe action. The Department of Biology and Marine Biology strongly supports the honor code and any actions that run counter to this code will not be tolerated in this course.

### **Violence and Harassment:**

UNCW practices a zero-tolerance policy for violence and harassment of any kind. For emergencies contact UNCW CARE at 962-2273, Campus Police at 962-3184, or Wilmington Police at 911. For University or community resources visit <http://uncw.edu/wrc/crisis.htm>.