

Term Information

Effective Term Spring 2018

General Information

Course Bulletin Listing/Subject Area Psychology
Fiscal Unit/Academic Org Psychology - D0766
College/Academic Group Arts and Sciences
Level/Career Graduate, Undergraduate
Course Number/Catalog 5603
Course Title Stem Cells and the Brain
Transcript Abbreviation Brain Stem Cells
Course Description This course will explore the biology, function and relevance of stem cells for brain and behavior from development through aging. Through lectures and primary research literature, we will discuss what it means to be a neural stem cell, how stem cells shape the brain and what the role of stem cells might be in brain disorders and mental health.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites Psych 3313 or graduate standing
Exclusions

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 42.0101
Subsidy Level Baccalaureate Course
Intended Rank Junior, Senior, Masters, Doctoral

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- 1. Understand what a stem cell is and how stem cells function in the brain.
- 2. Gain understanding of different classifications of stem cells, their unique properties and limitations.
- 3. Gain knowledge of how stem cells could be applied to brain disease/disorders.
- 4. Understand ethical challenges in research and therapeutic use of neural stem cells.
- 5. Be able to read, evaluate and present primary research literature in a cutting edge area of psychology/neuroscience.
- 6. Be able to engage in group discussions of empirical data constructively.

Content Topic List

- What is a stem cell?
- How is the brain built from stem cells?
- Regulation of brain development: environment, genetics and disorders
- Adult neural stem cells in the subventricular zone
- Adult neural stem cells in the hippocampus
- Regulation of adult neural stem cells by the environment
- Stem cells as therapy: neurodegenerative disease
- Stem cells as therapy: trauma, spinal injury
- Stem cells and society: medical ethics
- Neural stem cells and society: research ethics

Attachments

- Psychology Major Learning Objectives October 2016.docx: Curriculum Map
(Other Supporting Documentation. Owner: Paulsen, Alisa Marie)
- Psych 5603-UG syllabus.docx: Undergrad syllabus
(Syllabus. Owner: Paulsen, Alisa Marie)
- Psych 5603-Grad syllabus.docx: Grad syllabus
(Syllabus. Owner: Paulsen, Alisa Marie)
- Concurrence_Form_Psych 5603-signed.pdf: Concurrence-Neuroscience
(Concurrence. Owner: Paulsen, Alisa Marie)
- Concurrence-Physiology and Cell Biology.pdf: Concurrence-Physiology and Cell Biology
(Concurrence. Owner: Paulsen, Alisa Marie)
- Psych 5603 Concurrence-EEOB.pdf: Concurrence-EEOB
(Concurrence. Owner: Paulsen, Alisa Marie)

Comments

COURSE REQUEST
5603 - Status: PENDING

Last Updated: Haddad,Deborah Moore
02/21/2017

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Paulsen,Alisa Marie	02/21/2017 01:19 PM	Submitted for Approval
Approved	Givens,Bennet Stuart	02/21/2017 04:52 PM	Unit Approval
Approved	Haddad,Deborah Moore	02/21/2017 05:30 PM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler	02/21/2017 05:30 PM	ASCCAO Approval

Psych 5603. Stem cells and the brain (Undergraduate-level)

Instructor: Elizabeth Kirby

Office: 55 Psychology

Phone 688-2766

Email: Kirby.224@osu.edu

Office hours: TBD

Meeting location and time: TBD

Lecture for 2.75 h/week

Description: Stems cells are an integral part of the brain from its embryonic beginnings through adulthood. However, what stems can do and how they can influence behavior varies depending on age, location, environment and disease. Stem cells hold great promise as therapies for many brain diseases but how do their changing characteristics in different places and at different ages affect their usefulness? This course will explore the biology, function and relevance of stem cells for brain and behavior from development through aging. Through lectures and primary research literature, we will discuss what it means to be a neural stem cell, how stem cells shape the brain and what the role of stem cells might be in brain disorders and mental health.

Course materials: Instructor notes and primary research literature

Pre-requisites: Psych 3313

Grade basis:

50% Presentation of primary research article

Students will select a primary research article from a list curated by the instructor. They will present this article in a journal club format and lead a discussion of the article's merits and shortcomings. Presentations will be 30-45 min with 10-15 min for discussion for undergraduates.

30% Attendance and participation

A major part of the class is participating in discussion and analysis of primary experimental literature. In addition, attendance is essential for lecture portions because there is no text book and material will be largely covered in class by the instructor.

20% Quizzes

There will be 8 short quizzes (5 min each) in weeks 2-9, focusing on the material from the previous week.

Scale: Letter grade, standard OSU scale

Attendance: Mandatory and part of grading basis.

Due dates: Students will begin presenting primary literature in the 3rd week of the course. Students will sign up for preferred presentation slots at the beginning of the course. Quizzes will happen at the start of Weeks 2-9 (8 total). Graduate student written proposals will be due by the last day of class.

Week 1: What is a stem cell?

- Defining stemness
- Defining potency (pluripotent versus totipotent versus multipotent)
- Where can we find stem cells?
- What are the differences between different kinds of stem cells (embryonic, neural, induced pluripotent etc.)
- What are classical stem cell signaling cascades?

Homework:

NIH Stem Cell Basics: <https://stemcells.nih.gov/info/basics/1.htm>

Week 2: How is the brain built?

- Phases of brain development and various stem cell populations involved
- Where do neural stem cells come from?
- What happens to stem cells as development proceeds?
- Conservation of mechanisms across species

Homework:

Anderson, DJ. 2001. "Stem cells and pattern formation in the nervous system: the possible versus the actual." *Neuron*, 30, 19-35 (**selected sections**).

Vetter, ML. & Dorsky, RI. "Neurogenesis" Chapter 5 in *Developmental Neurobiology*. Rao, MS & Jacobson, M, eds.

Quiz: 5 min on previous week's topic

Week 3: Regulation of brain development: environment, genetics and disorders

- Role of the neurogenic niche in development
- How can neural stem cells be disrupted during development? What are the consequences for development of brain and behavior?
- How do neural stem cell dynamics (due to genes or environment) participate in developmental disorders such as autism, mental retardation, microcephaly, etc.

Student presentations: Primary articles relevant to the week's topic.

Homework:

Fuchs E., Tumber T., Guasch. 2004. "Socializing with the neighbors: stem cells and their niche." *Cell*, 116, 769-778

Telias, M. and Ben-Yosef, D. 2015. "Neural stem cell replacement: a possible therapy for neurodevelopmental disorders?" *Neural Regeneration Research*, 10, 180-182.

Quiz: 5 min on previous week's topic

Week 4: Adult neural stem cells in the subventricular zone

-Review of adult neurogenesis and stem cells in the adult subventricular zone

-Role of SVZ stem cells in brain function and behavior

Student presentations: Primary articles relevant to the week's topic.

Homework:

Anderson, DJ. 2001. "Stem cells and pattern formation in the nervous system: the possible versus the actual." *Neuron*, 30, 19-35 (**selected sections**).

Lim, DA. Alvarez-Buylla, A. 2016. "The adult ventricular-subventricular zone (V-SVZ) and olfactory bulb (OB) neurogenesis." *Cold Spring Harbor Perspectives in Biology*, 2.

Plus primary articles to be presented

Quiz: 5 min on previous week's topic

Week 5: Adult neural stem cells in the hippocampus

-Review of adult neurogenesis and stem cells in the adult hippocampus

-Role of hippocampal stem cells in brain function

Student presentations: Primary articles relevant to the week's topic.

Homework:

Anderson, DJ. 2001. "Stem cells and pattern formation in the nervous system: the possible versus the actual." *Neuron*, 30, 19-35 (**selected sections**).

Kempermann, Song & Gage. 2016. "Neurogenesis in the adult hippocampus." *Cold Spring Harbor Perspectives in Biology*, 2.

Plus primary articles to be presented

Quiz: 5 min on previous week's topic

Week 6: Regulation of adult neural stem cells by the environment

- Role of the neurogenic niche, relevance to behavior and mental health
- How do adult neural stem cells respond to aging, disease, injury?
- How do adult neural stem cells respond to positive stimuli like exercise?

Student presentations: Primary articles relevant to the week's topic.

Homework:

Winner, B & Winkler, J. 2016. "Adult neurogenesis in neurodegenerative diseases." Cold Spring Harbor Perspectives in Biology, 2.

Kang et al. 2016. "Adult neurogenesis and psychiatric disorders." Cold Spring Harbor Perspectives in Biology, 2.

Plus primary articles to be presented

Quiz: 5 min on previous week's topic

Week 7: Stem cells as therapy: neurodegenerative disease

- Review of current and past approaches to using stem cells to treat nervous system degeneration (Alzheimer's, Parkinson's, ALS).

Student presentations: Primary article relevant to the week's topic.

Homework: reading primary articles to be presented

Quiz: 5 min on previous week's topic

Week 8: Stem cells as therapy: trauma, spinal injury

- Review of current and past approaches to using stem cells to treat nervous system trauma (spinal injury, TBI)

Student presentations: Primary articles relevant to the week's topic.

Homework: reading primary articles to be presented

Quiz: 5 min on previous week's topic

Week 9: Stem cells and society: medical ethics

- Stem cell clinics and their ethical challenges
- Balances between inherent risk and benefit for patients
- Discussion of several prominent uses of stem cell therapy for brain injury (and why they never came to fruition or were abandoned)

-Role of the FDA

Student presentations: Primary articles relevant to the week's topic.

Homework: reading primary articles to be presented

Quiz: 5 min on previous week's topic

Week 10: Neural stem cells and society: research ethics

-Discussion of prominent example of research misconduct in the stem cell field and its implications for science and society

Student presentations: Primary articles relevant to the week's topic.

Homework: reading primary articles to be presented

Week 11: Student presentations

Homework: reading primary articles to be presented

Week 12: Student presentations

Homework: reading primary articles to be presented

Week 13: Student presentations

Homework: reading primary articles to be presented

Week 14: 4 student presentations

Homework: reading primary articles to be presented

Academic misconduct statement: "It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct at <http://studentlife.osu.edu/csc/>."

Disability statement: "Students with disabilities that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Ave.; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>."

Psych 5603. Stem cells and the brain (Graduate-level)

Instructor: Elizabeth Kirby

Office: 55 Psychology

Phone 688-2766

Email: Kirby.224@osu.edu

Office hours: TBD

Meeting location and time: TBD

Lecture for 2.75 h/week

Description: Stems cells are an integral part of the brain from its embryonic beginnings through adulthood. However, what stems can do and how they can influence behavior varies depending on age, location, environment and disease. Stem cells hold great promise as therapies for many brain diseases but how do their changing characteristics in different places and at different ages affect their usefulness? This course will explore the biology, function and relevance of stem cells for brain and behavior from development through aging. Through lectures and primary research literature, we will discuss what it means to be a neural stem cell, how stem cells shape the brain and what the role of stem cells might be in brain disorders and mental health.

Course materials: Instructor notes and primary research literature

Pre-requisites: consent of instructor

Grade basis:

25% Presentation of primary research article

Within the first 4 weeks of class, graduate students will select a recent empirical paper related to neural stem cells and the brain for approval by the instructor. They will present this article in a journal club format and lead a discussion of the article's merits and shortcomings. Graduate students will present for 45 min-1hr with 10-15 min for discussion.

25% Written proposal of followup experiment

Graduate students will create a follow-up experiment or additional control experiment related to the paper they presented (1-2 pages in length).

30% Attendance and participation

A major part of the class is participating in discussion and analysis of primary experimental literature. In addition, attendance is essential for lecture portions because there is no text book and material will be largely covered in class by the instructor.

20% Quizzes

There will be 8 short quizzes (5 min each) in weeks 2-9, focusing on the material from the previous week.

Scale: Letter grade, standard OSU scale

Attendance: Mandatory and part of grading basis.

Due dates: Graduate students will begin presenting primary literature in the last 4 weeks of the course. Article selection and approval by instructor are due by the end of the 4th week of class. Quizzes will happen at the start of Weeks 2-9 (8 total). Graduate student written proposals will be due by the last day of class.

Week 1: What is a stem cell?

-Defining stemness

-Defining potency (pluripotent versus totipotent versus multipotent)

-Where can we find stem cells?

-What are the differences between different kinds of stem cells (embryonic, neural, induced pluripotent etc.)

-What are classical stem cell signaling cascades?

Homework:

NIH Stem Cell Basics: <https://stemcells.nih.gov/info/basics/1.htm>

Week 2: How is the brain built?

-Phases of brain development and various stem cell populations involved

-Where do neural stem cells come from?

-What happens to stem cells as development proceeds?

-Conservation of mechanisms across species

Homework:

Anderson, DJ. 2001. "Stem cells and pattern formation in the nervous system: the possible versus the actual." *Neuron*, 30, 19-35 (**selected sections**).

Vetter, ML. & Dorsky, RI. "Neurogenesis" Chapter 5 in *Developmental Neurobiology*. Rao, MS & Jacobson, M, eds.

Quiz: 5 min on previous week's topic

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-Role of the neurogenic niche in development

-How can neural stem cells be disrupted during development? What are the consequences for development of brain and behavior?

-How do neural stem cell dynamics (due to genes or environment) participate in developmental disorders such as autism, mental retardation, microcephaly, etc.

Student presentations: Primary articles relevant to the week's topic.

Homework:

Fuchs E., Tumber T., Guasch. 2004. "Socializing with the neighbors: stem cells and their niche." *Cell*, 116, 769-778

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Lim, DA. Alvarez-Buylla, A. 2016. "The adult ventricular-subventricular zone (V-SVZ) and olfactory bulb (OB) neurogenesis." *Cold Spring Harbor Perspectives in Biology*, 2.

Plus primary articles to be presented

Quiz: 5 min on previous week's topic

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-Role of hippocampal stem cells in brain function

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Student presentations: Primary article relevant to the week's topic.

Homework: reading primary articles to be presented

Quiz: 5 min on previous week's topic

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-Review of current and past approaches to using stem cells to treat nervous system trauma (spinal injury, TBI)

Student presentations: Primary articles relevant to the week's topic.

Homework: reading primary articles to be presented

Quiz: 5 min on previous week's topic

Week 9: Stem cells and society: medical ethics

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- Balances between inherent risk and benefit for patients
- Discussion of several prominent uses of stem cell therapy for brain injury (and why they never came to fruition or were abandoned)
- Role of the FDA

Student presentations: Primary articles relevant to the week's topic.

Homework: reading primary articles to be presented

Quiz: 5 min on previous week's topic

Week 10: Neural stem cells and society: research ethics

- Discussion of prominent example of research misconduct in the stem cell field and its implications for science and society

Student presentations: Primary articles relevant to the week's topic.

Homework: reading primary articles to be presented

Week 11: Student presentations

Homework: reading primary articles to be presented

Week 12: Student presentations

Homework: reading primary articles to be presented

Week 13: Student presentations

Homework: reading primary articles to be presented

Week 14: 4 student presentations

Homework: reading primary articles to be presented

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student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct at <http://studentlife.osu.edu/csc/>."

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The Ohio State University
College of the Arts and Sciences Concurrence Form

The purpose of this form is to provide a simple system of obtaining departmental reactions to course requests. **An e-mail may be substituted for this form.**

An academic unit initiating a request should complete Section A of this form and send a copy of the form, course request, and syllabus to each of the academic units that might have related interests in the course. Units should be allowed two weeks to respond to requests for concurrence.

Academic units receiving this form should respond to Section B and return the form to the initiating unit. Overlap of course content and other problems should be resolved by the academic units before this form and all other accompanying documentation may be forwarded to the Office of Academic Affairs.

A. Proposal to review

Psychology 5603 Stem Cells and the Brain


Initiating Academic Unit	Course Number	Course Title	
New			10/13/16
Type of Proposal (New, Change, Withdrawal, or other)			Date request sent
Neuroscience			10/27/16
Academic Unit Asked to Review			Date response needed

B. Response from the Academic Unit reviewing

Response: include a reaction to the proposal, including a statement of support or non-support (continued on the back of this form or a separate sheet, if necessary).

Although there are minor overlaps with two extant courses in the Department of Neuroscience (e.g., NeuroSc 4050; Neurogenetics and NeuroSc 5790H; Developmental Neuroscience), we see no significant overlap or reason for this new course on Stem Cells and the Brain not to be taught in Psychology. We believe this course will be an excellent addition for OSU students to learn about brain development and function. We strongly support the proposal.

Signatures

	Professor and Chair	Neuroscience	10.17.2016
1. Name	Position	Unit	Date
2. Name	Position	Unit	Date
3. Name	Position	Unit	Date

Subject: RE: Concurrence for Psych 5603 requested
Date: Monday, October 31, 2016 at 7:59:32 AM Eastern Daylight Time
From: Mohler, Peter
To: Paulsen, Alisa
CC: Givens, Bennet, Kirby, Liz, Fowler, Lorri (DHLRI)

Dear Alisa

While it appears that there might be minor overlap in the areas covered in 5603 and the topics taught in current offerings of the Department of Physiology & Cell Biology, we fully support the proposal for Psych 5603.

Best of luck with your new course- looks like a great new learning opportunity for the students at Ohio State.

All my best, Peter

Peter J. Mohler, Ph.D.

Director – Dorothy M. Davis Heart & Lung Research Institute
Chair, Department of Physiology & Cell Biology
Professor, Departments of Internal Medicine and Physiology & Cell Biology
William D. and Jacquelyn L. Wells Chair in Cardiovascular Research
The Ohio State University Wexner Medical Center
Peter.Mohler@osumc.edu
Phone: 614-247-8610

From: Paulsen, Alisa [mailto:paulsen.10@osu.edu]
Sent: Friday, October 28, 2016 2:39 PM
To: Mohler, Peter J.
Cc: Givens, Bennet; Kirby, Liz; Paulsen, Alisa
Subject: Concurrence for Psych 5603 requested

Dear Dr. Mohler,

The Department of Psychology is creating a new course titled Stem Cells and the Brain (Psychology 5603). The course will have Psychology 3313 (Introduction to Behavioral Neuroscience) as a prerequisite, and will be taught at an advanced undergraduate/graduate level. I have attached the undergraduate and graduate syllabi, and requesting the support of the Department of Physiology and Cell Biology for this course. You can respond via email or by returning the attached concurrence form to me by November 11th. Please let me know if you have any questions.

Thanks,
Alisa

Alisa Paulsen, Ph.D.

Director of Undergraduate Programs

Department of Psychology

15 Psychology Building, 1835 Neil Avenue, Columbus, OH 43210

614-292-5750 Office / 614-292-5136 Fax

paulsen.10@osu.edu

undergrad.psy.ohio-state.edu

Subject: RE: Concurrence for Psych 5603 requested
Date: Thursday, November 17, 2016 at 2:28:22 PM Eastern Standard Time
From: Marschall, Elizabeth
To: Paulsen, Alisa
CC: Givens, Bennet, Kirby, Liz

Alisa,

Yes, EEOB is fine with having Psychology develop and teach this course.

Sincerely,

Libby Marschall

Elizabeth Marschall

Professor and Chair

Department of Evolution, Ecology, and Organismal Biology

300 Aronoff Laboratory, 318 West 12th Avenue, Columbus, OH 43210-1293

(614) 292-8280

marschall.2@osu.edu

eeob.osu.edu

From: Paulsen, Alisa
Sent: Monday, November 14, 2016 9:39 AM
To: Marschall, Elizabeth
Cc: Givens, Bennet; Kirby, Liz
Subject: Re: Concurrence for Psych 5603 requested

Dear Dr. Marschall,

Please let me know if we can answer any questions about our proposed course, Psychology 5603: Stem Cells and the Brain. We are hoping to offer the course in AU17 and would like submit it this week, if possible. I've attached the information for your review.

Thank you,
Alisa

Alisa Paulsen, Ph.D.

Director of Undergraduate Programs

Department of Psychology

15 Psychology Building, 1835 Neil Avenue, Columbus, OH 43210

614-292-5750 Office / 614-292-5136 Fax

paulsen.10@osu.edu

undergrad.psy.ohio-state.edu

From: Alisa Paulsen <paulsen.10@osu.edu>
Date: Friday, October 28, 2016 at 2:42 PM
To: "Marschall, Elizabeth" <marschall.2@osu.edu>
Cc: "Givens, Bennet" <givens.7@osu.edu>, "Kirby, Liz" <kirby.224@osu.edu>, Alisa Paulsen <paulsen.10@osu.edu>
Subject: Concurrence for Psych 5603 requested

Dear Dr. Marschall,

The Department of Psychology is creating a new course titled Stem Cells and the Brain (Psychology 5603). The course will have Psychology 3313 (Introduction to Behavioral Neuroscience) as a prerequisite, and will be taught at an advanced undergraduate/graduate level. I have attached the undergraduate and graduate syllabi, and am requesting the support of the Department of EEOB for this course. You can respond via email or by returning the attached concurrence form to me by November 11th. Please let me know if you have any questions.

Thanks,
Alisa

Alisa Paulsen, Ph.D.

Director of Undergraduate Programs
Department of Psychology
15 Psychology Building, 1835 Neil Avenue, Columbus, OH 43210
614-292-5750 Office / 614-292-5136 Fax
paulsen.10@osu.edu
undergrad.psy.ohio-state.edu

Psychology Major Learning Objectives

Program Objectives

Knowledge Base in Psychology

- K1. Describe key concepts, principles, & overarching themes in psychology
- K2. Develop working knowledge of psychology's content domains
- K3. Describe applications of psychology

Scientific Inquiry & Critical Thinking

- S1. Use scientific reasoning to interpret psychological phenomena
- S2. Demonstrate psychology information literacy
- S3. Engage in innovative & integrative thinking & problem solving
- S4. Interpret, design, & conduct basic psychological research
- S5. Incorporate sociocultural factors in scientific inquiry

Ethical & Social Responsibility in a Diverse World

- E1. Apply ethical standards to evaluate psychological science & practice
- E2. Build & enhance personal relationships
- E3. Adopt values that build community at local, national, & global levels

Communication

- C1. Demonstrate effective writing for different purposes
- C2. Exhibit effective presentation skills for different purposes
- C3. Interact effectively with others

Professional Development

- P1. Apply psychological content & skills to career goals
- P2. Exhibit self-efficacy & self-regulation
- P3. Refine project-management skills
- P4. Enhance teamwork capacity
- P5. Develop meaningful professional direction for life after graduation

Learning Goal Levels

- F – Foundational
- A- Advanced

I. Data Analysis and Research Requirement																				
Course	Area	K1	K2	K3	S1	S2	S3	S4	S5	E1	E2	E3	C1	C2	C3	P1	P2	P3	P4	P5
2220(H) Data Analysis		F			F	F	F	F					F			F	F	F		
2300 Research Methods		F	F	F	F	F	F	F	F	F	F		F		F	F	F	F		

II. Core Requirements (1 from each area)																				
A. Brain and Behavior																				
Course	Area	K1	K2	K3	S1	S2	S3	S4	S5	E1	E2	E3	C1	C2	C3	P1	P2	P3	P4	P5
3313 Intro to Behavioral Neuroscience	BN	F	F		F	F				F										
3313H Intro to Behavioral Neuroscience	BN	F	F		F	F	F	F		F	F		F	F	F				F	
3513 Intro to Cognitive Neuroscience	CO	F			F	A		F		F			F							
B. Cognitive Psychology																				
3302 Perception & Language	CO	A	A	A	A	A	F		F											
3310 Sensation & Perception	CO	A	A	F	A	F	F									F				F
3312 Memory & Cognition	CO	A	A	F	A	A	F	F	F	F			F	F	F					F
C. Clinical and Developmental Psychology																				
2367.02 Abnormal Psychology Analysis	CL	F	F	F	F		F						F		F				F	
3331 Abnormal Psychology	CL	F	F	A	A			A	A											
3335 Psychology of Adjustment	CL	F																		
3340 Lifespan Development	D	F	F	F	F	F						F	F							
3530 Theories of Personality	CL	A	A	A	A	F	F	F	A	F	A		F				F			
3550 Psychology of Childhood	D	F	F	F	F	F						F	F							
3551 Psychology of Adolescence	D	F		F	F	F		F						F						F

D. Social Psychology																			
2367.01 Social Psychology	S	F	F,A	F,A	F	F,A	F,A	F		F		F	F,A	F	F	F	F,A	F	F
3325 Intro to Social Psychology	S	F	F,A	F,A	F	F,A	F	F		F		F			F				
3375 Stereotyping and Prejudice	S	F	F	F,A	F	F	F	F	F	F	F	F,A			F	F,A			

III. Advanced Requirements																				
Course	Area	K1	K2	K3	S1	S2	S3	S4	S5	E1	E2	E3	C1	C2	C3	P1	P2	P3	P4	P5
Sequenced Advanced Courses																				
4305 Intro to Psychopharmacology	BN	A	A	A	A	A	A	A	A											
4475 The Self	S	A	A	A	A		A		A		A	A			A	A				A
4501 Advanced Behavioral Neuroscience	BN	A	A	A	A	A	A	A												
4510 Cognitive Psychology Laboratory	CO	A	A	A	A	A	A	A		A			A	A	F	F				
4518 Attitudes	S	F,A	F,A	F	F,A	F,A	F	F	F		F	F				F	F	F		
4520 Social Psychology Laboratory	S	A		F,A	F,A	F,A	A	F,A	F,A	F,A		A	A	A		F,A	F,A	A	A	A
4532 Clinical Psychology Science	CL	A	A	A	A		A	A		F,A						A				A
4540 Counseling Psychology	CL	F,A	F,A	F	F	F	F		F	F	F,A	F			F	F				
4630 Attitudes and Persuasion	S	F,A	F,A	F,A	F,A	F	F	F,A	F			F	F,A		F	F	F	F		
4644 Hormones and Behavior	BN	A	A	A	A	A	A	A												
5600 Psychobio. of Learning and Memory	BN	A	A	A	A	A			A	A	A									
5602 Behavioral Genetics	BN	A	A	A	A	F	F	A	A											
5606 High Level Vision	CO	A	A	F	A	F	A	A					A	A	F					
5614 Cognitive Neuroscience	CO	A	F	F	A	A	F	A	F	F			F	A	A			A	A	
5622 Development of Brain	BN	A	A	A	A	A	A	A	A					A	A					

and Behavior																					
5681 Development and Psychopathology	CL	A		A	A			F													
5684 Psychology of Delinquency	D	A	A	A	A	A	A	F	A	A	F	A	A	F	A	A	A	F	F	A	
Advanced Courses																					
4309 Human Motor Control	CO	A	A	A	A	A	F	F					F			F					
4485 Psychology and the Law		F,A	F,A	F,A	F, A	F	F	F	F	F	F	F,A	F,A			F,A					
4505 History of Psychology		A	F,A	A	F	A			A	F											
4508(H) Judgment and Decision-Making	Q	F	F	A	F		F	F	F												
4511 Psychological Testing		F	F	F	A	F		A		F			F	F		F					
4515 Psychology of Emotion	S	A,F	A,F	A,F	A,F	A,F		A,F	A,F	F	F					F			F		
4521 Personnel Psychology		F,A		F,A	F,A	F,A	F, A	F,A	F, A	F	F,A	F,A	F,A	F,A	F,A	F,A	F,A	F	F,A	F	F,A
4522 Organizational Psychology		A,F	A,F	A,F	F	F	A,F	F	F	F,A			F	F	F	F,A	F	F	F	F	
4531 Health Psychology	CL	A	A	A	A	F	F			A	F		F		F	F	F	F	F	A	
4543 Psychology of Gender	CL	A	F	A	A	A	F	F	A		A	F	F	F	A	F	A	F	F	F	
4545 Cross-Cultural Psychology	CL	F,A	F,A	A	A	F	F	F	F	F	F,A	F,A	F	F	F	F			F		
4552 Psychology of Adult Years	D	F		F	F	F															
4554 Language Development	D		A		A	A	A	F					A	A							
4555 Adolescent Sexuality	D	F		F	F	F		F					F	F					F		
4571 Psychology of Dev. Disabilities	I	F		F	F	F, A							F, A					F			
5601 Comparative Psychology		A	A		A	A															
5608 Introduction to Mathematical Models	Q	F			A			A										F			
5610 Emotion Regulation	CL	A	A	A	A	A	A	F	F	F			A		A	A					

5613H Biological Psychiatry	BN	A	A	A	A	A	A													
5615 Psychology of Language	CO				F	F	F	F	F	F			F							
5618 Computational Cog. Neuroscience	CO	A	A	A	F	F	F						F	A	F	F				
5621 Intro to Event-Related Potentials	CO	A	A	A	A	F	A	A		F	F	F	F	A	F	F			A	
5832 Lifespan Sociomoral Development	D	A	F		F	A							A							
5898 Seminar in Behavioral Neuroscience	BN	A	A	A	A	A	A	A	A					A	A					

IV. Elective Courses

Course	Area	K1	K2	K3	S1	S2	S3	S4	S5	E1	E2	E3	C1	C2	C3	P1	P2	P3	P4	P5
2301 Psychology of Extraordinary Beliefs	Q	F			A				F	F										
2303 Positive Psychology	CL	F		F	F	F	F	F		F	A	A	F		F	F	F			
2311 Psychology of Motivation	CO	A	A	F	F	F	F								F	F	F			
2333 Psychology of Human Sexuality	CL	A	F	F	F	F			F	F	A	A			F	F	F			
2350 Contemp. Developmental Psychology	D	F		F	F		F					F								
2376 Interpersonal Relationships	S	F,A		F,A	F	F		F	F		F				F	F		F	F	
2420 Psychology Applied to Sport		F		F,A	F,A	F			F	F	F				F	F			F	
2462 Psychology of Creativity							F,A				F	F		F	F	F,A				
3321(H) Quant. and Statistical Methods		F			A	F	F	F	F											
3371 Language and the Mind	CO	A	F		A	F		F	F		F		F	A	A	A	F	F	F	
3624 Primate Cognition		F	F		F	F				F										
4320 Psychological Science of Addiction		F	F	F			F													
4525 Psychology of Personal Security	S	A		F,A	F,A	F	F,A		F	F,A	F	F,A	F,A		F	F	F	F		
5425 Introduction to fMRI	CO	A		F,A	F,A	F	F,A			F,A	F	F,A	F,A		F	F	F	F		
5603 Stem Cells and the Brain	BN	A	A	A	A	A	A	A	A											
5612 Introduction to Cognitive Science	CO	A	A		F	F	F						F							
5620 Technology, Efficiency, and Happiness	CO	A	F	A	F	F	F	F				F	F	A		F				
5870 Neuroeconomics and Decision Neuroscience	D	F	F	A	A		F	F	F											
5891 Proseminar in Cognitive Science	CO	A	A	A	A	A	A	A		A			A	A	F					

Experiential Elective Courses

3191 Internship in Psychology		F		F		F					A	F, A	F		A	F, A	F, A		A	F, A
3193.01 Individual Studies in Psychology		A				A														
3193.02 Individual Studies: Teaching		A	F, A	F, A	F, A	A	A	F	F	F	A	F, A	A	A	A	F, A	F	F, A	A	A
4998 Undergraduate Research		A			F, A	A	F, A	F, A		F, A					A					
4999.01(H) Thesis Research I			A		A	A	A	A		A	A		A	A		A	A	A		A
4999.02(H) Thesis Research II			A		A	A	A	A		A	A		A	A		A	A	A		A
5700 Science Education Outreach	D		A	A	A	A		A	A			A		A	A	A	A		A	