Undergraduate Certificate in Neuroscience and Behavior - University of Colorado Boulder

➢ **The Neuroscience Undergraduate Certificate** encourages students to take courses in basic science while providing a means to specialize in Neuroscience. Since this area of biological sciences is cross-disciplinary, interdepartmental course selection is possible and encouraged. Before participating in the undergraduate Neuroscience Certificate, a student must first declare a major in one of the participating departments (MCDB, Psychology, or Integrative Physiology, although other majors or Schools can qualify). The students must satisfy the requirements of: 1) the parent department, 2) the Arts and Sciences core curriculum, and 3) the Neuroscience Certificate. The student then receives an undergraduate degree in their parent department with certification in Neuroscience. The awarding of the certificate appears as an official designation on your undergraduate transcript and a hard (mailed in) copy of the certificate.

➢ **What do you gain** by getting an undergraduate Certificate in Neuroscience? Although the Certificate is not equivalent to a major, it does demonstrate that you have completed a program beyond the major and one which demonstrates that you have interdisciplinary breadth in the biological sciences. Given the requirements and standards set for the Certificate, its award also demonstrates that you are among a select group of highly motivated undergraduates at CU Boulder. You can and should cite this award in your resumé.

➢ **The Neuroscience Certificate Requirements are:**

- ❖ General Chemistry with lab [CHEM 1113 & 1114 (5) and 1133 & 1134 (5) or similar courses]
- ❖ General Physics with lab [PHYS 2010 (5) and 2020 (5) or similar courses]
- ❖ Molecular Biology with lab [MCDB 1150 (3) & 1151, 1161 or 1171 (1) or EBIO 1210 (3) & 1230 (1) or similar courses]
- ❖ Introduction to Neuroscience [NRSC 2125 & 2150 (8)]
- ❖ Genetics [EBIO 2070 (4) or MCDB 2150 (3) or IPHY 4200 (3) or similar general genetics course]
- ❖ Statistics [PSYC 2111 (4) or PSYC 3101 (4) or IPHY 3280 (4) or EBIO 1010 (3) or EBIO 4410 (4) or MATH 2510 (3) or a similar course]
- ❖ One upper-division Neuroscience/Behavior courses in IPHY, MCDB, PSYC and/or another department (see list in Table 1 below)
- ❖ All courses must be taken for a letter grade (no pass/fail).
- ❖ Finally, an overall grade point average of 3.2 or better.

➢ **For more information** on this certificate, see the Neuroscience web page (http://www.colorado.edu/neuroscienceprogram/ugcert/) or send e-mail to Prof. Heidi Day (Heidi.Day@Colorado.EDU), director of the program. Answers to Frequently Asked Questions are also available on this web page.

Table 1. Elective Courses in the Neurosciences and Related Fields

Integrative Physiology (IPHY)

IPHY 3060 – Cellular Physiology (4)
IPHY 3430 – Intro to Human Physiology (3)
IPHY 3450 – Comparative Animal Physiology (3)
IPHY 3470 – Human Physiology 1 (3)
IPHY 3660 – Dynamics of Motor Learning (3)
IPHY 4440 – Endocrinology (4)
IPHY 4470 – Biology of Human Reproduction (3)
IPHY 4480 – Comparative Reproduction (3)
IPHY 4580 – Sleep Physiology (3)
IPHY 4600 – Immunology (3)
IPHY 4650 – Exercise Physiology (5)
IPHY 4720 – Neurophysiology (4)
IPHY 4730 – Integrative Motor Control (3)

Molecular, Cellular and Developmental Biology (MCDB)

MCDB 3135 – Molecular Cell Biology 1 (3)
MCDB 3145 – Molecular Cell Biology 2 (3)
MCDB 3650 – The Brain: Molecules to Behavior (3)
MCDB 3651 – Brain Dysfunction and Disease (3)
MCDB 4100 – Neural Development and Disease (3)
MCDB 4300 - Immunology
MCDB 4426 – Cell Signaling and Developmental Regulation (3)
MCDB 4427 – Biology of the Visual System (3)
MCDB 4471 – Eukaryotic Gene Regulation (3)
MCDB 4777 – Molecular Neurobiology (3)

Speech, Language, & Hearing Sciences(SLHS)

SLHS 3106 – Hearing Science (3)
SLHS 3116 – Speech Science (3)
SLHS 4576 – Communication Neuroscience (3)

Ecological & Evolutionary Biology (EBIO)

EBIO 3240 – Animal Behavior (4)

Psychology & Neuroscience (PSYC/NRSC)

NRSC 4015 – Affective Neuroscience
NRSC 4032 – Neurobiology of Learning & Memory (3)
NRSC 4042 – Systems Neuroscience (3)
NRSC 4052 – Behavioral Neuroscience (4)
NRSC 4062 – Neurobiology of Stress (3)
NRSC 4072 – Clinical Neuroscience (3)
NRSC 4082 – Neural circuits of Learning and Decision Making (3)
NRSC 4092 – Behavioral Neuroendocrinology (3)
NRSC 4132 – Neuropharmacology (3)
PSYC 4152 – Research Methods in Behavioral Genetics (4)
NRSC 4155 – Cognitive Neuroscience/ Neuropsychology (4)
PSYC 4165 – Psychology of Perception (4)
PSYC 4175 – Computational Cognitive Neuroscience (4)
NRSC 4400 – Genetics of Brain and Behavior (3)
NRSC 4542 – Neurobiology of Mental Illness (3)
NRSC 4545 – Neurobiology of Addiction (3)