**College of Engineering, Design, and Computing:**

**Neural Engineering Certificate Application**

Requirements:  
• The Certificate in Neural Engineering requires 12 credit hours of coursework: two required and two elective courses.  
• A 3.0 GPA average in all approved courses.  
• At least 9 of the 12 credits must be in graduate-level courses.

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| --- | --- | --- | --- |
| **Core (6 credits)** | | | |
| Course ID and Title | Semester Taken | Grade | Credits Earned |
| BIOE 5073 – Neural Interfaces and Bionic Limbs (Spring Only) |  |  |  |
| NRSC 7610 – Fundamentals of Neurobiology (Spring Only – note that this course has different start/end dates from the CU Denver academic calendar) |  |  |  |
| Technology Core Earned Credit Subtotal: | | |  |

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| **Technology Elective (3 credits) – Engineering course related to the MS thesis or project** | | | |
| Course ID and Title | Semester Taken | Grade | Credits Earned |
|  |  |  |  |
| Electives Earned Credit Subtotal: | | |  |

Technology Electives:

BIOE 5053: Optics and Microscopy in Biomedical Research (3 credits/Fall Only)

BIOE 5039: Mechatronics (3 credits/Fall Only)

BIOE 5068: Introduction to Medical Imaging (3 credits/Fall Only)

BIOE 5064: Advanced MatLab for Bioengineers and Life Scientists (3 credits/Fall Only)

BIOE 5100: Image Processing for Bioengineers (3 credits/Spring Only)

CSCI 5931: Deep Learning (3 credits/Spring Only)

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| **Neuroscience Elective (3 credits) – Neuroscience or Biology course related to the MS thesis or project** | | | |
| Course ID and Title | Semester Taken | Grade | Credits Earned |
|  |  |  |  |
| Research Earned Credit Subtotal: | | |  |

Neuroscience Electives:

NRSC 7615: Developmental Neurobiology (3 credits/Fall Only)

NRSC 7600: Cellular and Molecular Neurobiology (3 credits/Spring Only – note that this course has different start/end dates from the CU Denver academic calendar)

NRSC 7614: Biological Basis of Psychiatric and Neurological Disorders (3 credits/Spring Only)

TXCL 7751: Neuro-Toxicology (2 credits)

NRSC 7612: Nervous System Modeling with NEURON (1 credit)

NRSC 7657: Workshop in Advanced Programming for Neuroscientists (1 credit)

NRSC 7617: The Biophysics of Ion Channels (1 credit)

NRSC 7614: Biological Basis of Psychiatric and Neurological Disorders (1 credit)

NRSC 7675: Neuroethics and Neurophilosophy (1 credit)

NRSC 7618: Biology of the Eye (1 credit)

Note: One and two credit courses can be combined to make up the 3 credit elective requirements.

**This application** must be submitted to the Neural Engineering Certificate Advisor before  
the end of the semester in which all coursework is completed. Consult with the Advisor as  
early as possible for planning and to explore the possibilities. As courses are frequently updated, elective courses that are not on the list above can be approved on a case-by-case basis.

Neural Engineering Advisor Signature/Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Neural Engineering Advisor: Emily Gibson, [emily.gibson@cuanschutz.edu](mailto:emily.gibson@cuanschutz.edu)