Name: _____

ID: _____

Department of Bioengineering
UNIVERSITY OF COLORADO
DENVER | ANSCHUTZ MEDICAL CAMPUS

College of Engineering, Design, and Computing: MS Bioengineering Program Sheet

The Master of Science requires 30 credit hours of coursework, including 3 to 6 credit hours of a master's project or thesis. Note graduate credits must receive a B- or better. Note most courses only taught in the fall (F) or spring (S)

Fall Semester 1:

- □ Meet with your academic advisor (Note: it is recommended to with your academic advisor once a semester to make sure you are on track and meeting requirements to graduate)
- □ Attend Pitch Night, contact faculty whose research interests you
- □ Complete Mentor Selection Form and submit to the Director of Student Services (DSS)

Spring Semester 1:

- □ Take BIOE 5040 (Research Methods) and BIOE 5041 (Clinical Experiences)
- □ Form defense committee (3 faculty total – 2 must be core faculty per list on website)

Final Semester – See email from DSS each semester for deadlines

- □ Apply to graduate through UCD Access Portal
- □ Complete and Submit the Application for Candidacy to DSS
- □ Schedule defense date and reserve room (typically 2 hours duration)
- □ Complete and sign the Declaration of Original Work
- □ Complete and Submit the Request for Examination to DSS
- □ Send copy of thesis/project to all committee members at least 2 weeks before the defense
- □ Send copy of thesis/project to thesisdissertationsupport@ucdenver.edu for format review
- □ Defend thesis or project (45 min presentation, 15 min questions, 45 min closed exam)
- □ Get approvals on Thesis Approval Form and submit to Committee Chair
- □ Thesis only – Submit final thesis to ProQuest
- □ Complete Exit Survey

Bioengineering Core (5 to 6 credits)			
Course ID and Title	Semester	Grade	Credits
BIOE 5040 - Research Methods for Bioengineers (S) 2 credits			
BIOE 5041 - Clinical Experiences for Bioengineers (S) 1 credit			
BIOE 5000 - Department Seminar (F, S) min 2 credits, max 3 credits			
Bioengineering Core Earned Credit Subtotal:			

Quantitative Methods Core (3 credits)			
Course ID and Title	Semester	Grade	Credits
BIOE 5020 - Analytic Methods for Engineering Analysis (F)			
Quantitative Methods Core Earned Credit Subtotal:			

Quantitative Methods Electives (optional): Choose from among the following			
Course ID and Title	Semester	Grade	Credits
BIOE 5021 - Numerical Methods for Engineering Analysis (S)			
BIOE 5064 - Advanced MatLab for Bioengineers (F)			
BIOE 5100 - Image Processing for Bioengineers (F)			
BIOE 5420 - Data Science Methods (F)			
BIOL 6764 - Biological Data Analysis (S)			
BIOS 6601 - Applied Biostatistics			
MECH 5175 - Finite Element Analysis (F)			
MECH 5143 - Theory of Elasticity (S)			
MCEN 5023 - Solid Mechanics I (Boulder) (F)			
CSCI 5625 - Computer Vision (F)			
CSCI 5931 - Deep Learning (S)			
Quantitative Methods Electives Earned Credit Subtotal:			

Technology Electives (6 credits required, 3 must be BIOE): Choose from among the following			
Course ID and Title	Semester	Grade	Credits
BIOE 5039 - Mechatronics and Embedded Systems (F)			
BIOE 5053 - Optics and Microscopy in Biomed Research (F)			
BIOE 5054 - Regulatory Affairs (F)			
BIOE 5057 - Rehabilitation and Assistive Technology (F)			
BIOE 5058 - Introduction to Design, Disability, and Aging (S)			
BIOE 5063 - 3D Modeling for Bioengineers (F)			
BIOE 5073 - Neural Interfaces & Bionic Limbs (S)			
BIOE 5068 - Introduction to Medical Imaging (F)			
BIOE 5069 - Advanced Biomechanics (S)			
BIOE 5083 - Polymers in Biomedical Applications			
BIOE 5100 – Image Processing for Bioengineers (F)			
BIOE 5300 - Medical Device Design and Entrepreneurship (F)			
BIOE 5420 - Special Topics in Bioengineering (for the following topics): Engineering the ECM (F) MedTech Commercialization (F)			
CSCI 5211 - Mobile Computing and Programming			
MECH5030 – Exp and Comp Methods in Human Movement (S)			
MECH 5020 - Biomechanics (F)			
MECH 5025 - Advanced Biomechanics (S)			
MCEN 5115 - Mechatronics & Robotics I (Boulder) (F)			
Technology Earned Credit Subtotal:			

Life Sciences Electives (6 credits required, 3 must be BIOE): Choose from among the following			
Course ID and Title	Semester	Grade	Credits
BIOE 5010 - Cell and Molecular Biology for Bioengineers (F)			
BIOE 5011 - Systems Physiology for Bioengineers (S)			
BIOE 5200 - Stem Cells and Regenerative Medicine (F)			
BIOE 5420 - Special Topics in Bioengineering: Engineering the ECM (F)			
BIOE 5420 - Special Topics in Bioengineering: Anatomy, Physiology and Medical Terminology for Bioengineers (S)			
BIOE 5073 - Neural Interfaces & Bionic Limbs (S)			
BIOE 5074 - Introduction to Laboratory Animal Research (S)			
CANB 7600 - Cancer Biology (S)			
NRSC 7600 - Cellular and Molecular Biology (S)			
NRSC 7610 - Fundamentals of Neuroscience (S)			
NRSC 7615 - Developmental Neurobiology (F)			
Life Sciences Earned Credit Subtotal:			

General Electives (Remainder of credits) – In sciences, engineering, business related to the thesis or project.			
Course ID and Title	Semester	Grade	Credits
Electives Earned Credit Subtotal:			

Research Core (3-6 credits either Thesis or Project)			
Course ID and Title	Semester	Grade	Credits
BIOE 6950 - MS Thesis – Public defense of hypothesis-driven research with thesis submitted to ProQuest			
BIOE 6960 - MS Project – Private defense that can include design projects w/o published report			
Research Core Earned Credit Subtotal:			

Total Credits Earned (30 minimum):	

Name: ______________________________
ID: ________________________________

Department of Bioengineering
UNIVERSITY OF COLORADO
DENVER | ANSCHUTZ MEDICAL CAMPUS

Suggested Courses for Specializations (*Required courses for certificate are in red)

	Neural Engineering*	Biomaterials, Tissue Engineering, and Regenerative Medicine	Assistive and Inclusive Technologies*	Medical Device Design, Entrepreneurship, and Regulatory Affairs*	Orthopedics and Prosthetics	Computational Biomechanics and Bioinformatics
BIOE Core (5-6 credits)	BIOE5040 Res Methods (2) BIOE5041 Clin Exp (1) BIOE50?? Seminar (2-3)	BIOE5040 Res Methods (2) BIOE5041 Clin Exp (1) BIOE50?? Seminar (2-3)	BIOE5040 Res Methods (2) BIOE5041 Clin Exp (1) BIOE50?? Seminar (2-3)	BIOE5040 Res Methods (2) BIOE5041 Clin Exp (1) BIOE50?? Seminar (2-3)	BIOE5040 Res Methods (2) BIOE5041 Clin Exp (1) BIOE50?? Seminar (2-3)	BIOE5040 Res Methods (2) BIOE5041 Clin Exp (1) BIOE50?? Seminar (2-3)
Quantitative Methods Core (3 credits)	BIOE5020 Analytic Methods	BIOE5020 Analytic Methods	BIOE5020 Analytic Methods	BIOE5020 Analytic Methods	BIOE5020 Analytic Methods	BIOE5020 Analytic Methods
Suggested Quantitative Elective (3 credits)	**Choose 1 from among**: BIOE5021 Num Methods BIOE5420 Special Topics (Image Processing) BIOE5420 Data Science Methods BIOE5064 Adv. Matlab CSCI5931 Deep Learning CSCI5625 Computer Vision	BIOS6601 Appl Biostat	BIOS6601 Appl Biostat		BIOE5021 Num Methods	BIOE5021 Num Methods
Suggested Technology Electives (6 credits)	**Choose 2 from among**: BIOE5073 Bionic Limbs BIOE5053 Optics & Microscopy BIOE 5039 Mechatronics BIOE 5063 3D Modeling	BIOE5083 Polymers BIOE5420 Eng ECM	BIOE5057 Rehab / Ass Tech BIOE5420 Design Dis Age	BIOE5054 Reg Affairs BIOE5300 BioMed Device Design	BIOE 5039 Mechatronics MECH5030 Exp and Comp Methods in Human Move	BIOE5063 3D Biodesign BIOE5069 Adv Biomech
Suggested Life Sci Electives (6 credits)	BIOE5010 Cell Bio NRSC7610 Fundamentals of Neurobiology	BIOE5010 Cell Bio BIOE5011 Sys Phys	BIOE5420 Anat Med Term BIOE5011 Sys Phys	BIOE5010 Cell Bio BIOE5011 Sys Phys	BIOE5010 Cell Bio BIOE5073 Bionic Limbs	BIOE5010 Cell Bio BIOE5011 Sys Phys
Other Possible Electives	NRSC7600 Cell and Molec Neurobiology	BIOE5420 Stem Cells CSDV7670 Organoids	BIOE5067 Human Fact BIOE 5420 - Rehabilitation Engineering Fieldwork BIOE5063 3D Biodesign	BIOE5420 MedTech Comm ENTP6020 Bus Model Dev	NRSC7610 Fundamentals of Neurobiology BIOE5420 Stem Cells BIOE5420 Eng ECM BIOE5063 3D Biodesign	BIOE5064 MATLAB BIOE5063 3D Biodesign
Research (3-6 credits)	BIOE6950 Thesis	BIOE6950 Thesis	BIOE6960 Project	BIOE6960 Project	BIOE6950 Thesis	BIOE6950 Thesis

Name: _____

ID: _____

Department of Bioengineering

UNIVERSITY OF COLORADO

DENVER | ANSCHUTZ MEDICAL CAMPUS