

**M.S. IN BIOENGINEERING WORKSHEET**

Name: \_\_\_\_\_ Z#: \_\_\_\_\_ Advisor: \_\_\_\_\_

Date of Admission: \_\_\_\_\_ Undergraduate Institution/Year: \_\_\_\_\_

GPA: \_\_\_\_\_ Major: \_\_\_\_\_ GRE/Year: \_\_\_\_\_

**Deficiency Requirements** (Not counted in the total program credits)

- PCB 3063 can be taken at any time during the program; however it must be taken prior to BSC 6936 Biotechnology Lab.
- Programming requirement must be met prior to taking the following Engineering and Computer Science courses: Data Mining, Medical Information Systems, Bio-Signal Processing, Introduction to Neural Networks, and more electives.

Course No.	Course Name	Semester	Grade
PCB 3063	Genetics (4 credits) <span style="float: right;">Live only</span>		
COP 2220	Intro to Programming in C (optional for students with non-engineering background) <span style="float: right;">Live only</span>		

**Program Core Courses (12 Credits)**

Course No.	Course Name	Semester	Grade
BME 5000	Introduction to Bioengineering		
BME 5742	Biosystems Modeling and Control		
BME 6762	Bioinformatics: Bioengineering Perspectives		
BSC 6936	Advanced Biotechnology Lab (Special Topics) (Contact Dr. Binninger/ binninge@fau.edu)		

**Thesis Option:**

BME 6971	Master's Thesis Bioengineering (6 credits)		
BME 6905	Directed Independent Study. <i>No more than 3 credits of directed independent study may be applied toward the master's degree with thesis option.</i>		

**Non-Thesis Option:**

BME 6905	Directed Independent Study. 3 credits of research-oriented directed independent study		
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**Electives:**

Thesis Option: 12 credits of electives (at least 3 credits from Group A below)

Non Thesis Option: 21 credits of electives (at least 9 credits from Group A below)

**Group A: Engineering, Computer Science and Bioengineering Electives**

**Computer and Electrical Engineering and Computer Science and Mechanical Engineering Bioengineering Electives**

(No limit on the number of courses that can be chosen from the list below)

Course No.	Course Name	Semester	Grade
BME 6105	Biomaterials		
BME 6324	Stem Cell Engineering		
BME 6334	Tissue Engineering		
CAP 5615	Introduction to Neural Networks		
CAP 6411	Foundations of Vision		
CAP 6512	Evolutionary Computing		
CAP 6546	Data Mining for Bioinformatics		

CAP 6673	Data Mining and Machine Learning		
COT 5930	Medical Information Systems (Topics in Computer Science)		
EEE 5286	Bio-Signal Processing		
EEE 5425	Nano Biotechnology		
EEL 5661	Robotic Applications		
EEL 6819	Neural Complex and Artificial Neural Networks		
EEL 6935	Biometric Pattern Recognition (Special Topics)		
EEL 6935	Medical Imaging (Special Topics)		
EML 6930	Introduction to Microfluidics and BioMEMS (Special Topics)		
EML 6930	Introduction to Robotics (Special Topics)		

**Computer and Electrical Engineering and Computer Science *Other* Electives (Limit of 6 credits)**

Course No.	Course Name	Semester	Grade
CAP 6010	Multimedia Systems		
CAP 6415	Computer Vision		
CAP 6777	Web Mining		
CAP 6778	Advanced Data Mining & Machine Learning		
COP 6726	New Directions in Database Systems		
COP 6728	Visual Information Retrieval		
COP 6731	Theory & Implementation of Database Systems		
COT 5930	Digital Image Processing (Topics in Computer Science)		
EEE 5502	Digital Processing of Signals		
EEE 6585	Digital Processing of Speech Signals		
EEL 5613	Modern Control		
EEL 5654	Control Systems 2		
EEL 6819	Neural Complex and Artificial Neural Networks		

**Mechanical & Ocean Engineering Electives (Limit of 6 credits)**

Course No.	Course Name	Semester	Grade
BME 6222	Molecular Cellular & Tissue Biomechanics		
BME 6572	Nanotechnology		
BME 6638	Fields Forces and Flows in Biological Systems		
EIN 5603C	Industrial Automation		
EML 6930	Biomechanics		
EML 6930	Controls		
EOC 6630	Signal Processing		
EOC 6635	Engineering Data Analysis		

**Group B: Science Electives**

**Biology Electives: (Limit of 9 credits)**

Course No.	Course Name	Semester	Grade
BSC 6458C	Bioinformatics (Counts as Bioengineering Elective) (4 credits)		
BSC 5417C	Practical Cell Neuroscience		
MCB 6930	Advanced Topics in Microbiology		
PCB 6236	Advanced Immunology		
PCB 6849	Cellular Neuroscience and Disease		

**Chemistry Electives: (Limit 6 credits)**

Course No.	Course Name	Semester	Grade
BCH 6740	Advanced Biochemistry		
CHM 6157	Instrumentation		
CHM 6720	Kinetics and Energetics of Reaction		

**Complex Systems and Brain Science (Limit of 6 credits)**

Course No.	Course Name	Semester	Grade
ISC 5453	Nonlinear Dynamic Systems		
ISC 5465	Cognitive Neuroscience		
ISC 5930	Neural Time Series Analysis (Special Topics)		
ISC 6452	Cognition and Complex Systems		
ISC 6460	Computational Neuroscience 1		
ISC 6930	Special Topics		
PSB 6345	Neuroscience 1		
PSB 6346	Neuroscience 2		

**Physics and Math Electives (Limit 6 credits)**

Course No.	Course Name	Semester	Grade
MAP 6211	Intro to Dynamical Systems and Chaos		
MTG 6418	Dynamical Systems, Chaos and Computing		
RAT 6616	Medical Imaging Physics		
RAT 6628	Radiation Therapy Physics		
RAT 6629	Advanced Photon Beam Radiation Therapy		
RAT 6686	Radiation Physics		
RAT 6687	Nuclear Medical Physics		
STA 5195	Biostatistics		
STA 6857	Applied Time Series Analysis		

**Group C: Other Electives (Limit of 6 credits)****College of Business**

Course No.	Course Name	Semester	Grade
ENT 6196	Biotechnology Business Development [Counts as Bioengineering Elective]		

**College of Medicine**

Course No.	Course Name	Semester	Grade
BMS 6523	Autonomic Function and Diseases (Medicine)		
GMS 6301	Macromolecules & Human Disease		
GMS 6302	Molecular Basis of Disease & Therapy		
GMS 6735	Molecular Neuropsychopharmacology		
PCB 6207	Advanced Cell Physiology		
PCB 6238	Problem-Based Immunology		
PCB 6705	Molecular Biology of the Cardiovascular System and Cardiac Disease		
PCB 6848	Adult Neurogenesis		
PCB 6885	Physiology of the Heart		

**Admission to Candidacy/Online Plan of Study:** Students must apply for candidacy as soon as they are eligible. Students should prepare, in consultation with a graduate advisor, the online Plan of Study, i.e. the list of courses, for completing their degree requirements. All courses must be approved by the student's advisor.

**A student is eligible to apply for candidacy/online plan of study when:**

1. A minimum of 9 credit hours as a graduate student have been completed.
2. A minimum of 3.0 GPA in all courses attempted as a graduate student has been maintained.

Normally no more than 15 credit hours of work completed before submitting your Plan of Study will be accepted toward degree program.

**Students working toward the MS (thesis option) degree may not register for thesis until their Plan of Study has been approved.**

**A MINIMUM OF AT LEAST 18 CREDITS OF 6000 LEVEL COURSES MUST BE TAKEN TO MEET PART OF THE REQUIREMENTS FOR THE DEGREE.**

**Other Requirements:**

**No more than 3 credits of directed independent study may be applied toward both the thesis and non-thesis options of the master's degree**

**Advisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_**