



SAN JOSÉ STATE UNIVERSITY



Biomedical Engineering

Master of Science in Biomedical Engineering

Orientation

for students admitted in Spring 2022

Topics

- ◉ MS-BME Program Educational Objectives
- ◉ Curriculum Requirements
 - Transition courses
 - MS-BME core and elective courses
 - English Competency Requirement
 - MS Thesis/Project Options
- ◉ Advising
 - Sources of information
 - Forms, templates and instructions

Checklist for MS Degree

MS-BME degree Checklist - April 2021.pdf



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Tel: (408) 924-4000

Checklist for Completing the M.S. Biomedical Engineering Degree

In addition to the items listed in this Checklist, please also visit the Graduate Admissions and Program Evaluations Office's website at:

http://www.sjsu.edu/gape/current_students/completing_masters/

It provides a comprehensive listing of the university requirements you have to meet in order to complete your MS degree.

Important note before you begin reading further:

Keep a photocopy of all documents that you submit to the university!

Program Educational Objectives

- **Program Educational Objectives** are defined as career and professional **accomplishments** that are to be **achieved within the first few years of graduation.**

Program Educational Objectives

- ◉ Our MS-BME Program is designed to produce graduates who are prepared to:
 1. Are able to solve complex engineering problems and tasks, and use engineering, science and statistics principles to justify recommendations.
 2. Are able to evaluate the impact of their work on society, including ethical, economic, global and environmental aspects.
 3. Can deliver effective presentations of engineering results in written and oral formats.
 4. Have life-long learning skills and are able to apply their engineering knowledge to critically evaluate relevant literature and new technologies or systems.
 5. Are effective leaders, capable of working in diverse environments.
 6. Are able to apply their engineering education to a variety of career paths.

Succeeding in our Program

- ◉ Curriculum Requirements
- ◉ Explore new areas, innovate
- ◉ Participate in BMES initiatives
 - Annual Biomedical Device Conference
 - Peer mentoring
 - Industry field trip
 - Social events
 - Hiking, volleyball

MS Program features

- ◉ Diverse
 - Full time students
 - Working professionals
- ◉ Interdisciplinary
- ◉ Integrates skill sets necessary for professional success into curriculum

MS program
Curriculum Requirements

Entry requirements

- B.S. in engineering, physics, chemistry, biology
- *If* undergrad GPA > 3.00
then GRE not required

else GRE: > 315 (Sections 1, 2) + 3.5 (Section 3)

Program requirements

- ◉ Maintain GPA > 3.0 in all coursework
 - Lower division courses do not count towards GPA
- ◉ Courses for MS degree must be C or better
- ◉ 30 semester units of **approved** courses
- ◉ Meet university's English proficiency requirement
- ◉ Complete Thesis/Project Proposal Examination (BME 291)
- ◉ Complete Thesis/Project Defense
- ◉ Submit written Thesis or Project Report

Curriculum Overview

- ◉ Transition courses



Engineering, math, science,
biology fundamentals

- ◉ BME Core



BME breadth

- ◉ BME electives

- ◉ Thesis/Project



BME depth

Transition courses: lower division classes

- ◉ BME 65* Biomedical Applications of Statics
 - ◉ BME 68* Biomedical Applications of Metals and Ceramics
 - ◉ EE 98* Introduction to Circuit Analysis
 - ◉ Chem 1A* General Chemistry
 - ◉ Chem 1B* General Chemistry
 - ◉ Phy 50* General Physics
 - ◉ Phy 51* General Physics
 - ◉ Math 33A (or 33LA)* Ordinary Differential Equations (& Linear Algebra)
- } 1 year of Chemistry
- } 1 year of Physics

* Lower Division classes can be taken at community colleges

Transition courses: upper division classes

- ◉ BME 115 Foundations of Biomedical Engineering
- ◉ BME 147 Quantitative and Statistical Methods in BME
- ◉ BME 165 Introduction to Engineering Biomechanics
- ◉ **Enrolling in Transition Courses**
 - **Enroll as soon as possible** to make sure you have a space
 - Follow directions sent out by BME Advisor
 - Mechanism to enroll in each class is slightly different
 - ***Not taking Transition Courses in a timely manner will delay your progress towards your degree***

Change of classification

- ◉ As long as you still have transition courses to complete, you will have a **conditionally classified standing**.
- ◉ Once you complete all your transition courses with B or better, you can change your classification to **classified standing**.
 - You initiate the process by submitting a **Change of Classification form** to the Graduate Advisor.
- ◉ **Note:** having a classified standing (without condition) is a prerequisite to start your MS project/thesis.

BME core

- ◉ BME 207: Experimental Methods in BME
- ◉ BME 210: Mathematical Methods in BME
- ◉ BME 272: Medical Device Design & Principles
- ◉ BME 274: Regulatory, Clinical and Manufacturing Aspects of Medical Devices
- ◉ BME 276: Project Management in Biomedical Technologies
- ◉ BME 291: Project/Thesis Preparation Seminar

BME electives

- ◉ BME 182: Prosthetics and Orthotics
- ◉ BME 187: Medical Device Quality Systems
- ◉ BME 188: Biomedical Manufacturing Methods
- ◉ BME 217: Experimental and Computational Biofluid Mechanics
- ◉ BME 254: Microscale Biomedical Systems
- ◉ BME 256: Biomedical Applications of Nanoplatforms
- ◉ BME 258: Biomedical Imaging
- ◉ ME 267: Engineering Biomechanics
- ◉ BME 272: Biomedical Device Design and Principles
- ◉ BME 288: Tissue Engineering

English Competency Requirement

- University requirement: *all graduate students must demonstrate competency in written English.*
- The English Competency Requirement (also referred to as Graduation Writing Assessment Requirement, or GVAR) is satisfied by completing either one of the following courses:
 - BME 207: Experimental Methods in BME
 - BME 274: Regulatory, Clinical and Manufacturing Aspects of Medical Devices
- Completing your GVAR is a prerequisite for submitting your candidacy form and starting your MS project/thesis.

MS Thesis/Project Options

◉ **Project** option:

- BME Core: 15 units
- BME Electives: 12 units (4 classes)
- BME 291: 1 unit MS Thesis/Project Preparation Seminar
- BME 298: 2 units MS Project

+

+

+

30 units

=

◉ **Thesis** option:

- BME Core: 15 units
- BME Electives: 9 units (3 classes)
- BME 291: 1 unit MS Thesis/Project Preparation Seminar
- BME 298: 2 units MS Project
- BME 299: 3 units MS Thesis

+

+

+

+

30 units

=

Recommended Class Sequence

- ◉ Admitted students should complete their **transition courses** (if any) as soon as possible, so they can upgrade to classified standing.
- ◉ **Core courses** should also be taken as soon as they are offered, while still giving priority to transition courses.
- ◉ **Elective courses** should be taken once all the transition courses have been completed.
- ◉ **BME 291 (MS Project/Thesis Proposal)** must be taken:
 - after all the transition courses, 3 200-level courses, and the GVAR have been completed;
 - at least two semesters before the expected graduation date
- ◉ **MS Project/Thesis: BME 291, 298, (and 299 for thesis)** must be taken in **sequence, with no overlapping** (e.g. 291 and 298 cannot be taken in the same semester, and neither can 298 and 299).

Prerequisites for BME 291

- **All** Transition Courses completed
- **Change of Classification form** filed
- English Competency Requirement satisfied
- Minimum 9 units towards MS degree
- **Candidacy form** filed
- Good academic standing - GPA > 3.0
- Thesis/Project topic and advisor identified

MS program **Advising**

Graduate advising hold

- ◉ Advising is mandatory every semester.
- ◉ Every semester, an advising hold will prevent you from registering for classes without approval from your undergraduate advisor.
- ◉ How do I remove my advising hold?
 - You meet with your undergraduate advisor
 - Discuss your plan for the following semester, summarized in your **advising form**
 - Have your advising form approved and signed by your advisor

Graduate advising form (via Google forms)

- The advising form is available via Google form:

- [Advising form for Spring 2022](#)

click here

- The form will guide you to:

- recap the status of your transition, core and elective courses, as well as your MS project/thesis;
 - plan your courses for the next semester

The screenshot displays a Google Form titled "SJSU M.S. Biomedical Engineering Advising Form for Spring 2022". The form is divided into sections, with "Section 1 of 7" and "Section 2 of 7" visible. Section 1 includes a header with the San José State University Biomedical Engineering logo and a description: "Every MS student in the BME program should fill out and submit this form to have their advising hold removed, so they can register for the Spring 2022 classes." Section 2, titled "General information", contains a "Description (optional)" field and two required text input fields: "First name" and "Last name".

Section 1 of 7

SJSU M.S. Biomedical Engineering Advising Form for Spring 2022

Every MS student in the BME program should fill out and submit this form to have their advising hold removed, so they can register for the Spring 2022 classes.

After section 1 Continue to next section

Section 2 of 7

General information

Description (optional)

First name *

Short answer text

Last name *



Removing Conditionally Classified standing

- As soon as you have completed all of your Transition Courses, you will have to transfer from Conditionally Classified standing to Classified standing.
- Fill out the Change of Classification form.
- Send to Graduate Coordinator.

Instructions

Do not hand write - Must be typed

This form should be filled out by the master's committee chair or graduate advisor. It is to be used only for students currently enrolled who have met the conditions specified by their program at the time of their admission. The signature of the chair or advisor indicates that the student should be transferred into an (unconditionally) classified status. This completed form should be emailed to the appropriate GAPE evaluator (see www.sjsu.edu/gape/about_us/staff), submitted to Window G in the Student Services Center, or sent through interoffice mail to extended zip 0017.

Student Information

Last Name

First Name, M.I.

Student ID

Previous Name, if any

Current Address

City

State

Zip

Daytime Phone

Email Address

Program Information

Program (major/concentration, if applicable)

Student was admitted as a **conditionally classified** student needing to meet the following conditions:

1.
2.
3.
4.
5.
6.
7.

List here the transition courses taken, with semester and grade.

Petition for Advancement to Graduate Candidacy

- ◉ a.k.a. **Candidacy form**
- ◉ Before you can submit your candidacy form, you must have:
 - Completed all Transition Courses
 - Changed your Classification to Classified standing
 - Completed a minimum of 9 200-level units
 - No more than 9 units of 100-level classes
 - Completed the University's English proficiency requirement

[illegible]


Petition for Advancement to Graduate Candidacy

- The form must be filed at least one year before graduation and before beginning BME 291.
- **List only courses to be counted towards MS degree**
 - Do not include Transition Courses or Engr 200W
 - Enter classes in appropriate categories
- **The total number of units must add up to 30**, with GPA > 3.0
- Your grade in each course must be C or better
- Fill out the Change of Classification form, and send to Graduate Coordinator.

Course Substitution Form

- This form must be submitted if you are changing one or more of the courses listed in your approved Candidacy form.
- A Course Substitution form can be initiated by a student using this online form:
[Request for Course Substitution For the Graduate Degree](#)
 - You may have to copy and paste the link above in your browser.
- The student must list the course(s) to be dropped and course(s) to be added.

Request for Course Substitution For the Graduate Degree



SAN JOSÉ STATE UNIVERSITY

SJSU ID *

First Name *

Last Name *

Email Address *

Major *

Are you requesting the substitution of an elective course or a core course? View your program's core and elective courses in the [University Catalog](#). *

☐ Core ☐ Elective

Optional: Attach your Candidacy Petition (0)

This is the first page of the online form.
After that, the student will be prompted to enter additional information about their petition.

Application for Graduation

- Must be submitted at least two semesters ahead
 - Master's Students Apply for Graduation Online:
[Link to instructions on YouTube:](#)

The screenshot shows the Oracle Student Center interface for a user named Sammy Spartan. The navigation bar includes links for Favorites, Main Menu, Self Service, and Student Center. The user's name and a 'go to ...' dropdown are visible. Below the navigation bar, there are tabs for Search, Plan, Enroll, and My Academics. The 'My Academics' section is active, displaying a list of links for various academic services. The 'Graduation' link is circled in red, indicating the next step in the process. To the right, the 'My Program' section shows the current academic objective and a table of program details.

My Program:		
Current Academic Objective		
1 of 1		
Requirement (Catalog) Term		
Career:	Graduate	Fall 2014
Program:	MSXD - Masters Special Sess	Fall 2014
Plan:	Public Health	Fall 2014

Expected Grad Term: Spring 2019
Graduation Status: Eligible for Graduation

Current Academic Summary

Last Term
Summer 2016

Verification of Culminating Experience

- To be filled out and filed after
 - thesis/project defense completed, AND
 - written report/thesis submitted and approved, AND
 - your BME 298 (and 299) grade has been converted to CR, AND
 - all other requirements for the MS degree have been met.
- *The Graduate Coordinator fills out and submits this form upon verification from project/thesis advisor that all requirements have been completed.*
- **You will not graduate until this form is submitted.**

MS-BME programs

- ◉ At the time of your application, you were asked to choose between the “vanilla” MS-BME program and the **MS-BME program with concentration in Medical Devices**.
 - This is a bit of a legacy distinction, and your graduate advisor may not take it into account during your advising meetings.
- ◉ However, if you really want that “Concentration in Medical Devices” label to show on your final diploma, you must take the three electives listed for the concentration:
 - BME 168 - Medical and Biological Polymers
 - BME 254 - Microscale Biomedical Systems: Physics and Applications
 - ME 267 - Engineering Biomechanics

Forms, templates, instructions

- ◉ All forms issued by Graduate Studies Office can be found at <http://www.sjsu.edu/gape/forms>
 - Try there first, and in case you can't find the form you need, contact the Graduate Coordinator
- ◉ All forms must be submitted electronically.
- ◉ Read the instructions on the forms carefully.
- ◉ Keep copies of all paperwork submitted.
- ◉ Templates with detailed instructions are available for:
 - advising form
 - candidacy form

Student Rights & Responsibilities

- ◉ Rights

- Fair grading – demand it!
- Access to records (only your own)
- Office hours – use it!

- ◉ Responsibilities

- Academic honesty
 - no cheating, no plagiarism
 - do not give or receive unauthorized assistance

Important dates: Spring 2022

SPRING 2022

<i>Friday</i>	<i>December 31</i>	<i>New Year's Day (Observed) - Campus Closed (N)</i>
<i>Monday</i>	<i>January 17</i>	<i>Dr. Martin Luther King, Jr. Day - Campus Closed (K)</i>
Monday	January 24	Spring Semester Begins
Monday-Tuesday	January 24-25	Pre-Instruction Activities: Faculty Orientation, Advisement, Faculty Meetings and Conferences (P)
Wednesday	January 26	First Day of Instruction – Classes Begin
Monday	February 7	Last Day to Drop Courses without an Entry on Student's Permanent Record (D)
Monday	February 14	Last Day to Add Courses & Register Late (A)
Tuesday	February 22	Enrollment Census Date (CD)
Monday-Friday	March 28-April 1	Spring Recess (*SPRING RECESS*)
<i>Thursday</i>	<i>March 31</i>	<i>Cesar Chavez Day - Campus Closed (CC)</i>
Monday	May 16	Last Day of Instruction – Last Day of Classes
Tuesday	May 17	Study/Conference Day (no classes or exams) (SC)
Wednesday-Friday	May 18-20	Final Examinations (exams)
Monday-Tuesday	May 23-24	Final Examinations (exams)
Wednesday	May 25	Final Examinations Make-Up Day (MU)
Thursday	May 26	Grade Evaluation Day (E)
Friday	May 27	Grades Due From Faculty (G)
Friday	May 27	End of Academic Year - End of Spring Semester
Wednesday-Friday	May 25-27	Commencement (C)
<i>Monday</i>	<i>May 30</i>	<i>Memorial Day - Campus Closed (M)</i>

Spring 2022 Biomedical Engineering Courses @ SJSU



Course #	Course Title	Units	Days	Times	Location
BME 065	BME Applications of Statics*	3	TR	12:00-12:50	Online
BME 115	Foundations of BME*	4	TR	15:00-16:15	ENG 189
BME 116	Biosensors and Bioinstrumentation*	3	MW	10:30-11:20	ENG 331
BME 117	Biotransport Phenomena	3	TR	13:30-14:45	ENG 331
BME 130	Numerical Methods in BME*	3	MW	13:30-14:20	CL 222
BME 133	Programming Applications in BME	1	F	18:00-20:45	Online
BME 147	Quantitative & Statistical Methods for BME	3	TR	16:30-17:45	ENG 189
BME 165	Applied Engineering Biomechanics	3	MW	15:00-16:15	ENG 343
BME 174	Biomedical Regulatory Requirements	3	MW	16:30-17:45	Online
BME 177	Physiology for Engineers*	3	MW	15:00-15:50	ENG 341
BME 178	Biomedical Product Realization	3	MW	13:30-14:45	Online
BME 180	Individual Studies	1-3			
BME 182	Prosthetics and Orthotics	3	R	18:00-20:45	Online
BME 198B	Senior Project II*	2	F	9:30-10:20	ENG 329/331
BME 210	Computational Methods in BME	3	MW	16:30-17:45	ENG 331
BME 254	Microscale Biomedical Systems	3	T	18:00-20:45	CL 324
BME 258	Medical Imaging for Engineers*	3	R	16:30-18:10	ENG 333
BME 272	BME Design Principles	3	MW	19:45-21:00	TBD
BME 280	Graduate Research Studies	1-3			
BME 291	Master's Thesis/Project Preparation Seminar	1	F	15:00-17:45	TBD
BME 298	Master's Project	2	F	18:00-19:40	ENG303
BME 299	Master's Thesis	3	F	18:00-20:45	ENG301

* Check for lab Schedule

100-level classes are undergraduate classes. Please contact Dr. Guna Selvaduray, (guna.selvaduray@sjsu.edu), BME Department Chair, for further information.

200-level classes are graduate classes. Please contact Dr. Alessandro Bellofiore, (alessandro.bellofiore@sjsu.edu), BME Graduate Advisor, for further information.