Materials Science & Engineering and Business Administration

M.E.T. at a Glance: One program, two Bachelor of Science (B.S.) degrees.

The Materials Science & Engineering and Business Administration simultaneous degree is part of the Management, Entrepreneurship, & Technology Program. The M.E.T. Program aims to educate leaders with a seamless understanding of technology innovation, from idea to real-world impact.

M.E.T. students earn two Bachelor of Science degrees in one program that combines the best of the top-ranked College of Engineering and Haas School of Business. The integrated curriculum is completed in four years. Internships, career coaching and other enrichment activities provide ample opportunity for hands-on experience with innovation and entrepreneurship. Each M.E.T. cohort is small, allowing for close mentoring and a tight-knit community.

Admission to the M.E.T. Program

The M.E.T. Program seeks inquisitive, self-motivated students with a passion for finding and solving big problems. It is highly competitive and is open to freshmen during the UC application period (November 1 - 30). Freshman admission is limited to a maximum of 50 students. Current UC Berkeley sophomores in the College of Engineering majoring in one of the M.E.T. tracks may apply to M.E.T. via the Continuing Student Admissions process.

For further information, please visit the M.E.T. website (https://met.berkeley.edu).

Accreditation

The MSE undergraduate degree program in the College of Engineering is accredited by ABET. The Undergraduate Business Degree Program is accredited by The Association to Advance Collegiate Schools of Business (AACSB).

In addition to the University, Campus, and M.E.T. Program requirements listed on the College Requirements tab, students must fulfill the below requirements.

General Guidelines

1. A minimum of 38 upper division business units are required.
2. Students must complete the College Requirements <link to College Requirements page> and the Major Requirements.
3. Students must complete the degree program in eight semesters, not including Summer Session.
4. All Haas business courses must be taken for a letter grade, including core substitutions, with the exception of UGBA 194 (http://guide.berkeley.edu/search/?P=UGBA%20194), UGBA 198 (http://guide.berkeley.edu/search/?P=UGBA%20198) and UGBA 199 (http://guide.berkeley.edu/search/?P=UGBA%20199) (only offered Pass/No Pass).
5. All technical courses that can be used to fulfill a requirement must be taken for a letter grade.
6. Students who receive a grade of D+ or lower in a core UGBA course must repeat the course until they achieve a grade of C- or better.
7. Students must complete their business prerequisite courses (including Reading & Composition Parts A & B) by the spring semester of their sophomore (2nd) year.
8. Two M.E.T. Special Topics courses are required. M.E.T. Special Topics courses will count as upper division business units. A passing grade of C- or better is required.
9. Students in this program must adhere to all policies and procedures of the College of Engineering and the Haas School of Business.

For information regarding University and campus requirements, Reading and Composition, breadth, class schedule, minimum academic progress, and unit requirements, please see the College Requirements (p. 3).

Lower Division Requirements

UGBA 10X	Foundations of Business	3
ECON 1	Introduction to Economics	4
MATH 51/1A	Calculus I (MATH 51 as of Fall 2025)	4
MATH 52/1B	Calculus II (MATH 52 as of Fall 2025)	4
MATH 53	Multivariable Calculus	4
PHYSICS 89	Introduction to Mathematical Physics	4
CHEM 1A & 1AL	General Chemistry and General Chemistry Laboratory [1]	5
or CHEM 4A	General Chemistry and Quantitative Analysis	
CHEM 1B	General Chemistry [1]	4-5
or CHEM 4B	General Chemistry and Quantitative Analysis	
PHYSICS 7A	Physics for Scientists and Engineers	4
PHYSICS 7B	Physics for Scientists and Engineers	4
PHYSICS 7C	Physics for Scientists and Engineers	4
ENGIN 7	Introduction to Computer Programming and Numerical Methods	4
ENGIN 40	Engineering Thermodynamics	4
MAT SCI 45	Properties of Materials	3
MAT SCI 45L	Properties of Materials Laboratory	1
MEC ENG C85/ CIV ENG C30	Introduction to Solid Mechanics	3

[1] CHEM 4A and CHEM 4B are intended for students majoring in chemistry or a closely-related field.

Upper Division Requirements

Materials Science and Engineering

Math/Stat/Data Elective [1]		**3-4**
MAT SCI 102	Bonding, Crystallography, and Crystal Defects	3
MAT SCI 103	Phase Transformations and Kinetics	3
MAT SCI 104	Materials Characterization	3
MAT SCI 104L	Materials Characterization Laboratory	1
MAT SCI 111	Properties of Electronic Materials	4
MAT SCI 112	Corrosion (Chemical Properties)	3

MAT SCI 113	Mechanical Behavior of Engineering Materials	3
MAT SCI 151	Polymeric Materials	3
MAT SCI 131	Additive Manufacturing Processes and Systems for Advanced Materials	3
MAT SCI 120 series course		3-4
Upper Division Engineering Elective [2]		**3-4**

[1] **Math/Stat/Data Elective**
Choose one of the following: STAT 134, STAT C140, IND ENG 172, or COMPSCI C100/DATA C100/STAT C100 + STAT C88S or UGBA 88 connector

[2] **Upper Division Engineering Elective**
Students must complete an upper division engineering elective, of at least 3 units, chosen in consultation with the student's faculty adviser. The engineering elective cannot be: any course taken on a P/NP basis; any course that counts as H/SS; BIOENG 100; CHMENG 185; DESINV courses (except 190E); ENGIN 125, 157AC, 180, 183 series, 185, 187, 195 series; INDENG 172, 185, 186, 190 series, 191, 192, 195; MECENG 190K, 191AC, 191K. Students may use three units of credit for work on a research project in MAT SCI H194 (Honors Undergraduate Research). Other letter-graded research courses may be approved by petition. Typically, this elective should be offered by a department within the College of Engineering or from the Department of Chemical & Biomolecular Engineering.

BUSINESS ADMINISTRATION core courses

UGBA 100	Business Communication	2
UGBA 101A	Microeconomic Analysis for Business Decisions	3
UGBA 101B	Macroeconomic Analysis for Business Decisions	3
UGBA 102A	Financial Accounting	3
UGBA 102B	Managerial Accounting	3
UGBA 103	Introduction to Finance	4
UGBA 104	Introduction to Business Analytics	3
UGBA 105	Leading People	3
UGBA 106	Marketing	3
UGBA 107	The Social, Political, and Ethical Environment of Business	3
M.E.T. Special Topics		
Two courses are required: M.E.T. Introductory Topics & M.E.T. Capstone Course [1]		
Total Units		**30**

[1] M.E.T. Special Topics courses will count as upper division Business units.

business administration elective courses

Select a minimum of 4-6 units of upper division UGBA elective courses in order to complete a minimum of 38 units of upper division Business Administration courses.

UGBA 117	Special Topics in Economic Analysis and Policy	1-4
UGBA 118	International Trade	3
UGBA 120AA	Intermediate Financial Accounting 1	4
UGBA 120AB	Intermediate Financial Accounting 2	4
UGBA 120B	Advanced Financial Accounting	4
UGBA 121	Federal Income Tax Accounting	4
UGBA 122	Financial Information Analysis	4
UGBA 123	Operating and Financial Reporting Issues in the Financial Services Industry	3
UGBA 125	Ethics in Accounting	3
UGBA 126	Auditing	4
UGBA 127	Special Topics in Accounting	1-4
UGBA 128	Strategic Cost Management	3
UGBA 131	Corporate Finance and Financial Statement Analysis	3
UGBA 131A	Corporate Strategy and Valuation	3
UGBA 132	Financial Institutions and Markets	3
UGBA 133	Investments	3
UGBA 134	Introduction to Financial Engineering	3
UGBA 136F	Behavioral Finance	3
UGBA 137	Special Topics in Finance	1-4
UGBA 141	Production and Operations Management	2-3
UGBA 143	Game Theory and Business Decisions	3
UGBA 147	Special Topics in Operations and Information Technology Management	1-4
UGBA 151	Management of Human Resources	3
UGBA 152	Negotiation and Conflict Resolution	3
UGBA 154	Power and Politics in Organizations	3
UGBA 155	Leadership	3
UGBA 157	Special Topics in the Management of Organizations	1-4
UGBA 160	Customer Insights	3
UGBA 161	Market Research: Tools and Techniques for Data Collection and Analysis	3
UGBA 162	Brand Management and Strategy	3
UGBA 162A	Product Branding and Branded Entertainment	2
UGBA 164	Marketing Strategy	3
UGBA 165	Advertising Strategy	3
UGBA 167	Special Topics in Marketing	1-4
UGBA 169	Pricing	3
UGBA C172	History of American Business	3
UGBA 173	Competitive Strategy	3
UGBA 174	Leading Strategy Implementation	3
UGBA 175	Legal Aspects of Management	3
UGBA 176	Innovations in Communications and Public Relations	2
UGBA 177	Special Topics in Business and Public Policy	1-4
UGBA 178	Introduction to International Business	3
UGBA 179	International Consulting for Small and Medium-Sized Enterprises	3
UGBA 180	Introduction to Real Estate and Urban Land Economics	3
UGBA 183	Introduction to Real Estate Finance	3
UGBA 184	Urban and Real Estate Economics	3
UGBA 187	Special Topics in Real Estate Economics and Finance	1-4
UGBA 190S	Strategy for the Information Technology Firm	3
UGBA 190T	Special Topics in Innovation and Design	1-4
UGBA 191C	Communication for Leaders	2
UGBA 191I	Improvisational Leadership	3

UGBA 191L	Leadership Communication	1
UGBA 191P	Leadership and Personal Development	3
UGBA 192A	Leading Nonprofit and Social Enterprises	3
UGBA 192AC	Social Movements and Social Media	3
UGBA 192B	Strategic Philanthropy	2
UGBA 192L	Applied Impact Evaluation	2
UGBA 192N	Topics in Social Sector Leadership	1-5
UGBA 192P	Sustainable Business Consulting Projects	3
UGBA 192T	Topics in Responsible Business	1-4
UGBA 193B	Energy & Civilization	4
UGBA 193C	Practical Training	0.5
UGBA 193I	Business Abroad	4-6
UGBA 194	Undergraduate Colloquium on Business Topics	1
UGBA 195A	Entrepreneurship	3
UGBA 195P	Entrepreneurship: How to Successfully start a New Business	3
UGBA 195S	Entrepreneurship To Address Global Poverty	3
UGBA 195T	Topics in Entrepreneurship	1-3
UGBA 196	Special Topics in Business Administration	1-4
UGBA 198	Directed Study	1-4
UGBA 199	Supervised Independent Study and Research	1-4

M.E.T. Program Requirements

Reading and Composition

Two Reading and Composition (R&C) courses must be taken for a letter grade (C- or better required), and must be completed by no later than the end of the sophomore year (4th semester of enrollment). The first half of R&C, the “A” course, must be completed by the end of the freshman year; the second half of R&C, the “B “course, by no later than the end of the sophomore year or a student's registration will be blocked. View a detailed list of courses (http://guide.berkeley.edu/undergraduate/colleges-schools/engineering/reading-composition-requirement/)that fulfill Reading and Composition requirements.

Breadth Requirement

The undergraduate breadth requirement provides Berkeley students with a rich and varied educational experience outside of their major program. As the foundation of a liberal arts education, breadth courses give students a view into the intellectual life of the University while introducing them to a multitude of perspectives and approaches to research and scholarship. Engaging students in new disciplines and with peers from other majors, the breadth experience strengthens interdisciplinary connections and context that prepare Berkeley graduates to understand and solve the complex issues of their day.

Students in the M.E.T. Program must successfully complete six breadth courses, one in each of the following categories:

Arts and Literature

Historical Studies

International Studies

Philosophy and Values (will be satisfied with UGBA 107)

Physical Science (will be satisfied with Physics 7B)

Social and Behavioral Sciences (will be satisfied with Econ 1)

- With the exception of UGBA 107, UGBA courses cannot be used to fulfill breadth requirements.
- With the exception of Econ 1 or Econ 2, microeconomics and macroeconomics at any level (Econ 3, Econ 100A/B, Econ 101A/B, IAS 106/107) cannot be used to fulfill breadth requirements.
- No more than two courses from any one department may be used to satisfy the breadth requirement (L&S Discovery courses (http://lsdiscovery.berkeley.edu) are exempt).
- Advanced Placement, International Baccalaureate and A-Level exams cannot be used to fulfill the breadth requirement.
- Courses numbered 97, 98, 99, or above 196 may not be used to complete any breadth requirement.
- Breadth courses must be a minimum of 3 semester units.
- Reading & Composition courses cannot be used to fulfill breadth requirements.

Class Schedule Requirements

- Minimum units per semester: 13
- Maximum units per semester: 20.5
- Students in the M.E.T. Program must enroll each semester in no fewer than two letter graded technical courses (of at least 3 units each, with the exception of Engineering 25, 26 and 27). Every semester they are expected to make satisfactory progress in their declared major; satisfactory progress in the student's declared major is determined by their ESS adviser.

Minimum Academic (Grade) Requirements

- A minimum overall and semester grade point average of 2.000 (C average) is required. Students will be subject to dismissal from the University if during any fall or spring semester their overall U.C. GPA falls below a 2.000, or their semester GPA is less than 2.000.
- Students must achieve a minimum GPA of 2.000 (C average) in upper division technical courses each semester. Students will be subject to dismissal from the University if their upper division technical GPA falls below 2.000.
- A minimum overall GPA of 2.000, and a minimum 2.000 GPA in upper division technical course work required of the major are required to graduate.

Unit Requirements

- A minimum of 120 units are required to graduate.
- A maximum of 16 units of Special Studies coursework (courses numbered 97, 98, 99, 197, 198, or 199) will count towards the 120 units; a maximum of four are allowed in a given semester.
- A maximum of four units of Physical Education from any school attended will count towards the 120 units.
- Passed grades may account for no more than one third of the total units completed at UC Berkeley, Fall Program for Freshmen (FPF), UC Education Abroad Program (UCEAP), or UC Berkeley Washington Program (UCDC) toward the 120 overall minimum unit requirement. Transfer credit is not factored into the limit. This includes transfer units from outside of the UC system, other UC campuses, credit-bearing exams, as well as UC Berkeley Extension XB units.

University of California Requirements

Entry Level Writing (https://guide.berkeley.edu/undergraduate/education/#earningyourdegreetext)

All students who will enter the University of California as freshmen must demonstrate their command of the English language by satisfying the Entry Level Writing Requirement (ELWR). The UC Entry Level Writing Requirement website (https://admission.universityofcalifornia.edu/elwr/) provides information on how to satisfy the requirement.

American History and American Institutions (https://guide.berkeley.edu/undergraduate/education/#earningyourdegreetext)

The American History and Institutions (AH&I) requirements are based on the principle that a US resident graduated from an American university should have an understanding of the history and governmental institutions of the United States.

Campus Requirement

American Cultures (https://guide.berkeley.edu/undergraduate/education/#earningyourdegreetext)

The American Cultures requirement is a Berkeley campus requirement, one that all undergraduate students at Berkeley need to pass in order to graduate. You satisfy the requirement by passing, with a grade not lower than C- or P, an American Cultures course. You may take an American Cultures course any time during your undergraduate career at Berkeley. The requirement was instituted in 1991 to introduce students to the diverse cultures of the United States through a comparative framework. Courses are offered in more than fifty departments in many different disciplines at both the lower and upper division level.

First Year

Fall	Units	Spring	Units
MATH 1A[1]	4	MATH 1B[2]	4
CHEM 1A & 1AL	5	PHYSICS 7A[3]	4
OR		CHEM 1B or 4B[4]	4
CHEM 4A[4] [5]		Reading & Composition course from List B[5]	4
MAT SCI 45 & 45L[6]	4	ENGIN 7	4
Reading & Composition course from List A[5]	4		
UGBA 196 (M.E.T. Introductory Topics Course)[7]	2		
	19		**20**

Second Year

Fall	Units	Spring	Units
MATH 53	4	PHYSICS 89[8]	4
UGBA 10X	3	MAT SCI 151	3
STAT 134, C140, or IND ENG 172 (or COMPSCI C100/DATA C100/STAT C100 plus STAT 88 or UGBA 88)[9]	4	PHYSICS 7C	4
PHYSICS 7B (Breadth - Physical Science)[10]	4	ECON 1 or 2[10, 11]	4
Breadth - Arts and Literature/AC[5]	4	MEC ENG C85 or CIV ENG C30	3
	19		**18**

Third Year

Fall	Units	Spring	Units
Breadth - Historical Studies/AC[10, 11]	4	MAT SCI 103	3
MAT SCI 102	3	MAT SCI 111	4
MAT SCI 113	3	MAT SCI 112	3
ENGIN 40	4	UGBA Elective[12]	
UGBA 101A	3	UGBA 101B	3
M.E.T. Capstone Course (UGBA 196)[7]	2	Breadth - International Studies[10]	3
		UGBA 100	2
	19		**18**

Fourth Year

Fall	Units	Spring	Units
MAT SCI 120 Series Course	3-4	MAT SCI 104 & 104L	4
MAT SCI 131	3	UGBA 102B	3
UGBA 102A	3	UGBA 105	3
UGBA 103	4	UGBA 107 (Breadth - Philosophy and Values)[10]	3
UGBA 104	3	Upper Division Engineering Elective[13]	3
UGBA 106	3	UGBA Elective[12]	2
	19-20		**18**

Total Units: 150-151

1 MATH 1A may be fulfilled with a score of 3, 4 or 5 on the AP Calculus AB or BC exam, a score of 5, 6 or 7 on the IB Higher Level Math exam, or a grade of A, B or C on the A-Level Math H1, H2, H3, Pure Math or Further Math exam.

2 MATH 1B may be fulfilled with a score of 4 or 5 on the AP Calculus BC exam, a score of 7 on the IB Higher Level Math exam, or a grade of A, B or C on the A-Level Math, Math H2, or Further Math exam.

3 PHYSICS 7A may be fulfilled with a score of 5 on the AP Physics C Mechanics exam.

4 CHEM 1A/CHEM 1AL may be fulfilled with a score of 3, 4 or 5 on the AP Chemistry exam, a score of 5, 6 or 7 on the IB Higher Level Chemistry exam, or a grade of A, B or C on the A-Level Chemistry exam. CHEM 4A and CHEM 4B are intended for students majoring in chemistry or a closely-related field.

5 Reading & Composition part A may be fulfilled with a score of 4 or 5 on the AP English Language and Composition exam or the AP English Literature and Composition exam, or a score of 5, 6 or 7 on the IB Higher Level English Literature exam or the IB Higher Level English Language and Literature exam. A 5 on the AP English Literature and Composition exam, or a score of 5 or higher on the IB Higher Level English Language and Literature exam will fulfill Reading & Composition part A and part B.

6 MAT SCI 45/45L can be taken in either the Fall or Spring semesters of the first year. Both offerings deliver the same fundamental content. The Fall offering draws more examples from hard materials (e.g. semiconductors, metals and ceramics), whereas the Spring offering will draw more examples from soft materials (e.g. polymers and biomaterials).

7 M.E.T. Special Topics courses are required and will count as upper division business units. A passing grade of C- or higher is required.

8 Please note that PHYSICS 89 is meant to replace MATH 54. As such, students should be well prepared for any class listing MATH 54 as a prerequisite and often the departments offering those courses do not

officially enforce their prerequisites in the system so there should not be an issue with enrollment.

[9] Choose one of the following: STAT 134, STAT C140; IND ENG 172, or COMPSCI C100/DATA C100/STAT C100 + STAT C88S or UGBA 88 connector to fulfill the MSE Math/Stat/Data Elective **and** UGBA Statistics prerequisite.

[10] ECON 1 (or ECON 2) and UGBA 107 will be accepted for the Social and Behavioral Sciences and Philosophy and Values breadth requirements, respectively, as exceptions for students in the M.E.T. Program. The Biological Science breadth requirement is waived for students in the M.E.T. Program. Some American Cultures courses will also fulfill the Arts & Literature or Historical Studies breadth requirement; use Requirements filters to search the Class Schedule (http://classes.berkeley.edu/) for courses that apply. See the College Requirements (p. 3) tab on this page for further restrictions on breadth courses.

[11] ECON 1 may be fulfilled with scores of 4 or 5 on both the AP Microeconomics exam and AP Macroeconomics exam. However, the Social and Behavioral Sciences Breadth requirement cannot be fulfilled with AP exam scores.

[12] Students must complete a minimum of 38 units of upper division business coursework. See UGBA Elective course list under “Major Requirements” tab.

[13] Upper Division Engineering Elective: An Upper Division Engineering Elective is chosen in consultation with the student's faculty adviser. Students may use three units of credit for work on a research project in MAT SCI H194 (Honors Undergraduate Research). Other letter-graded research courses may be approved by petition. Typically, this elective should be offered by a department within the College of Engineering or from the Department of Chemical & Biomolecular Engineering. Upper Division Engineering Electives cannot include:

- Any course taken on a Pass/No Pass basis
- Any course that counts as M.E.T. Breadth
- Any of the following courses: BIO ENG 100; DESINV courses (except DES INV 190E); ENGIN 125, ENGIN 157AC, ENGIN 180, ENGIN 183 series, ENGIN 185, ENGIN 187, ENGIN 195 series; IND ENG 172, IND ENG 185, IND ENG 186, IND ENG 190 series, IND ENG 191, IND ENG 192, IND ENG 195; MEC ENG 190K, MEC ENG 191AC, MEC ENG 191K.

Major maps are experience maps that help undergraduates plan their Berkeley journey based on intended major or field of interest. Featuring student opportunities and resources from your college and department as well as across campus, each map includes curated suggestions for planning your studies, engaging outside the classroom, and pursuing your career goals in a timeline format.

Use the major map below to explore potential paths and design your own unique undergraduate experience:

View the Management, Entrepreneurship, & Technology (M.E.T.) Major Map. (https://discovery.berkeley.edu/getting-started/major-maps/materials-science-engineering-business-administration/)

MAT SCI 24 Freshman Seminar 1 Unit

Terms offered: Spring 2025, Spring 2023, Spring 2022
The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 20 freshmen.

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final Exam To be decided by the instructor when the class is offered.

MAT SCI 45 Properties of Materials 3 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
Application of basic principles of physics and chemistry to the engineering properties of materials. Emphasis on establishing structure, property, processing, and performance interrelationships in metals, ceramics, and polymers. While core concepts are fully covered each semester, examples and contextualization in Fall editions focuses on metals, ceramics, and functional/electronic properties and in Spring editions on polymers and soft-materials.

Rules & Requirements

Prerequisites: Students should have completed high school AP or honors chemistry and physics

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Martin, Messersmith

MAT SCI 45L Properties of Materials Laboratory 1 Unit

Terms offered: Fall 2025, Spring 2025, Fall 2024
This course presents laboratory applications of the basic principles introduced in the lecture-based course MSE45 – Properties of Materials.
Rules & Requirements

Credit Restrictions: Students will receive no credit for MSE 45L after taking E45L

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of laboratory per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructors: Martin, Messersmith

MAT SCI 102 Bonding, Crystallography, and Crystal Defects 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
Bonding in solids; classification of metals, semiconductors, and insulators; crystal systems; point, line, and planar defects in crystals; examples of crystallographic and defect analysis in engineering materials; relationship to physical and mechanical properties.
Rules & Requirements

Prerequisites: MAT SCI 45

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Chrzan

MAT SCI 103 Phase Transformations and Kinetics 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
The nature, mechanisms, and kinetics of phase transformations and microstructural changes in the solid state. Atom diffusion in solids. Phase transformations through the nucleation and growth of new matrix or precipitate phases. Martensitic transformations, spinodal decomposition. The use of phase transformations to control microstructure.
Rules & Requirements

Prerequisites: MAT SCI 102 and ENGIN 40

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

MAT SCI 104 Materials Characterization 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
This 3-unit course will cover basic principles and techniques used for the characterization of engineering materials. The course is designed to introduce undergraduate students to the basic principles of structural, chemical and property characterization techniques. The course is grounded in modern x-ray diffraction and electron microscopy techniques for characterization of the chemical and structural properties of a material. The course introduces the fundamental theoretical framework for diffraction, spectrometry and imaging methods.

Objectives & Outcomes

Course Objectives: Materials characterization lies at the heart of understanding the property-structure-processing relationships of materials. The goal of the course is to prepare undergraduate students from materials science to understand the basic principles behind material characterization tools and techniques. More specifically, this class will provide students (1) a thorough introduction to the principles and practice of diffraction, (2) introductory exposure to a range of common characterization methods for the determination of structure and composition of solids. A successful student will learn (1) the theory of x-ray and electron diffraction, (2) basic elements of electron microscopy, (3) basic aspects of optical and scanning probe techniques.

Rules & Requirements

Prerequisites: MAT SCI 102. A basic knowledge of structure, bonding and crystallography will be assumed

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Scott, Minor

MAT SCI 104L Materials Characterization Laboratory 1 Unit

Terms offered: Spring 2025, Spring 2024, Spring 2023
This 1-unit laboratory course covers X-ray diffraction (XRD), scanning electron microscopy (SEM), and transmission electron microscopy (TEM), as well as lab writeup protocols and academic integrity. Students will get hands-on experience using the XRD, SEM and TEM equipment to perform microstructural characterization of materials. Students will also design and run their own project on a topic of their choosing.

Objectives & Outcomes

Course Objectives: Practical experience on the most common materials characterization equipment for structural and chemical analysis of materials. Introduction to laboratory procedures and independent projects.

Rules & Requirements

Prerequisites: MAT SCI 102; and MAT SCI 104 must be taken concurrently. A basic knowledge of structure, bonding and crystallography will be assumed. Undergraduate student in engineering, physics or chemistry

Hours & Format

Fall and/or spring: 15 weeks - 1.5 hours of laboratory and 1 hour of discussion per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructors: Scott, Minor

MAT SCI 111 Properties of Electronic Materials 4 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
Introduction to the physical principles underlying the electric properties of modern solids with emphasis on semiconductors; control of defects and impurities through physical purification, bulk and thin film crystal growth and doping processes, materials basis of electronic and optoelectronic devices (diodes, transistors, semiconductor lasers) and optical fibers; properties of metal and oxide superconductors and their applications.

Rules & Requirements

Prerequisites: PHYSICS 7A, PHYSICS 7B, and PHYSICS 7C; or PHYSICS 7A, PHYSICS 7B and consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Dubon, Wu, Yao

MAT SCI 112 Corrosion (Chemical Properties) 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
Electrochemical theory of corrosion. Mechanisms and rates in relation to physiochemical and metallurgical factors. Stress corrosion and mechanical influences on corrosion. Corrosion protection by design, inhibition, cathodic protection, and coatings.

Rules & Requirements

Prerequisites: MAT SCI 45 and ENGIN 40

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Devine

MAT SCI 113 Mechanical Behavior of Engineering Materials 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
This course covers elastic and plastic deformation under static/dynamic loads. Prediction/prevention of failure by yielding, fracture, fatigue, wear and environmental effects are addressed. Design issues of materials selection for load-bearing applications are discussed. Case studies of engineering failures are presented. Topics include engineering materials, structure-property relationships, mechanical behavior of metals, ceramics, polymers and composites, complex stress/strain states, stress concentrations, multiaxial loading, plasticity, yield criteria, dislocations, strengthening mechanisms, creep, fracture mechanics and fatigue.

Rules & Requirements

Prerequisites: CIV ENG C30/MEC ENG C85 and MAT SCI 45

Credit Restrictions: Students will receive no credit for 113 after taking C113 or Mechanical Engineering C124. Deficiency in C113 or Mechanical Engineering C124 maybe removed by taking 113.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Ritchie

MAT SCI 117 Properties of Dielectric and Magnetic Materials 3 Units

Terms offered: Spring 2021, Spring 2017, Spring 2011
Introduction to the physical principles underlying the dielectric and magnetic properties of solids. Processing-microstructure-property relationships of dielectric materials, including piezoelectric, pryoelectric, and ferroelectric oxides, and of magnetic materials, including hard- and soft ferromagnets, ferrites and magneto-optic and -resistive materials. The course also covers the properties of grain boundary devices (including varistors) as well as ion-conducting and mixed conducting materials for applications in various devices such as sensors, fuel cells, and electric batteries.

Rules & Requirements

Prerequisites: PHYSICS 7A, PHYSICS 7B, and PHYSICS 7C; or PHYSICS 7A, PHYSICS 7B, and consent of instructor. MAT SCI 111 is recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

MAT SCI C118 Biological Performance of Materials 4 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
This course is intended to give students the opportunity to expand their knowledge of topics related to biomedical materials selection and design. Structure-property relationships of biomedical materials and their interaction with biological systems will be addressed. Applications of the concepts developed include blood-materials compatibility, biomimetic materials, hard and soft tissue-materials interactions, drug delivery, tissue engineering, and biotechnology.

Objectives & Outcomes

Course Objectives: The course is separated into four parts spanning the principles of synthetic materials and surfaces, principles of biological materials, biological performance of materials and devices, and state-of-the-art materials design. Students are required to attend class and master the material therein. In addition, readings from the clinical, life and materials science literature are assigned. Students are encouraged to seek out additional reference material to complement the readings assigned. A mid-term examination is given on basic principles (parts 1 and 2 of the outline). A comprehensive final examination is given as well. The purpose of this course is to introduce students to problems associated with the selection and function of biomaterials. Through class lectures and readings in both the physical and life science literature, students will gain broad knowledge of the criteria used to select biomaterials, especially in devices where the material-tissue or material-solution interface dominates performance. Materials used in devices for medicine, dentistry, tissue engineering, drug delivery, and the biotechnology industry will be addressed.

This course also has a significant design component (~35%). Students will form small teams (five or less) and undertake a semester-long design project related to the subject matter of the course. The project includes the preparation of a paper and a 20 minute oral presentation critically analyzing a current material-tissue or material-solution problem. Students will be expected to design improvements to materials and devices to overcome the problems identified in class with existing materials.

Student Learning Outcomes:
Apply math, science & engineering principles to the understanding of soft materials, surface chemistry, DLVO theory, protein adsorption kinetics, viscoelasticity, mass diffusion, and molecular (i.e., drug) delivery kinetics.

•
Design experiments and analyze data from the literature in the context of the class design project.
Apply core concepts in materials science to solve engineering problems related to the selection biomaterials, especially in devices where the material-tissue or material-solution interface dominates performance.
Develop an understanding of the social, safety and medical consequences of biomaterial use and regulatory issues associated with the selection of biomaterials in the context of the silicone breast implant controversy and subsequent biomaterials crisis.
Work independently and function on a team, and develop solid communication skills (oral, graphic & written) through the class design project.
•
Understanding of the origin of surface forces and interfacial free energy, and how they contribute to the development of the biomaterial interface and ultimately biomaterial performance.

Rules & Requirements

Prerequisites: MAT SCI 45 and BIO ENG 103 are required.
BIO ENG 102 and BIO ENG 104 are strongly recommended.

MAT SCI 120 Materials Production 3 Units

Terms offered: Fall 2022, Fall 2021, Fall 2020
Economic and technological significance of metals and other materials. Elementary geology (composition of lithosphere, mineralization). Short survey of mining and mineral processing techniques. Review of chemical thermodynamics and reaction kinetics. Principles of process engineering including material, heat, and mechanical energy balances. Elementary heat transfer, fluid flow, and mass transfer. Electrolytic production and refining of metals. Vapor techniques for production of metals and coatings.

Rules & Requirements

Prerequisites: ENGIN 40, MEC ENG 40, CHM ENG 141, CHEM 120B, or equivalent thermodynamics course

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

MAT SCI 121 Metals Processing 3 Units

Terms offered: Spring 2019, Spring 2015, Spring 2014
The principles of metals processing with emphasis on the use of processing to establish microstructures which impart desirable engineering properties. The techniques discussed include solidification, thermal and mechanical processing, powder processing, welding and joining, and surface treatments.

Rules & Requirements

Prerequisites: MAT SCI 45

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Gronsky

MAT SCI 122 Ceramic Processing 3 Units

Terms offered: Fall 2012, Fall 2011, Fall 2010
Powder fabrication by grinding and chemical methods, rheological behavior of powder-fluid suspensions, forming methods, drying, sintering, and grain growth. Relation of processing steps to microstructure development.

Rules & Requirements

Prerequisites: MAT SCI 45 and ENGIN 40

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

MAT SCI 123 ELECTRONIC MATERIALS PROCESSING 4 Units

Terms offered: Spring 2022, Spring 2021, Spring 2020
This 4-unit course starts with a brief review of the fundamentals of solid-state physics including bands and defects in semiconductors and oxides, and then moves to bulk semiconductor crystals growth and processing including doping, diffusion and implantation, and then to thin film deposition and processing methods, and finishes with a discussion of materials analysis and characterization. Recent advances in nanomaterials research will also be introduced.

Objectives & Outcomes

Course Objectives: To prepare students a) for work in semiconductor processing facilities and b) for graduate studies related to thin film processing and relevant materials science topics.
To present the relevant materials science issues in semiconductor and oxide processing.
To provide an introduction into the principles of thin film processing and related technologies.

Student Learning Outcomes: Basic knowledge of gas kinetics and vacuum technology, including ideal gas, gas transport theory, definition, creation and measurement of vacuum.
Knowledge of electrical and optical properties of thin films.
Knowledge of the formation of p-n junction to explain the diode operation and its I-V characteristics. Understanding of the mechanisms of Hall Effect, transport, and C-V measurements, so that can calculate carrier concentration, mobility and conductivity given raw experimental data.
The ability to describe major growth techniques of bulk, thin film, and nanostructured semiconductors, with particular emphasis on thin film deposition technologies, including evaporation, sputtering, chemical vapor deposition and epitaxial growths.
To have basic knowledge of doping, purification, oxidation, gettering, diffusion, implantation, metallization, lithography and etching in semiconductor processing.
To have basic knowledge of electronic material characterization methods: x-ray diffraction, SEM and TEM, EDX, Auger, STM and AFM, Rutherford Back Scattering and SIMS, as well as optical methods including photoluminescence, absorption and Raman scattering.
To understand the concepts of bands, bandgap, to distinguish direct and indirect bandgap semiconductors. Understanding of free electron and hole doping of semiconductors to determine Fermi level position.
To understand the effect of defects in semiconductors, so that can describe their electronic and optical behaviors, and the methods to eliminate and control them in semiconductors.

Rules & Requirements

Prerequisites: MAT SCI 111, PHYSICS 7C, or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Wu, Yao

MAT SCI 125 Thin-Film Materials Science 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
Deposition, processing, and characterization of thin films and their technological applications. Physical and chemical vapor deposition methods. Thin-film nucleation and growth. Thermal and ion processing. Microstructural development in epitaxial, polycrystalline, and amorphous films. Thin-film characterization techniques. Applications in information storage, integrated circuits, and optoelectronic devices. Laboratory demonstrations.

Rules & Requirements

Prerequisites: Upper division or graduate standing in Engineering, Physics, Chemistry, or Chemical Engineering; and MAT SCI 45. PHYSICS 111A or PHYSICS 141A recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Dubon

MAT SCI 127 Introduction to Additive Manufacturing: Process, Materials and Designs 3 Units

Terms offered: Spring 2024, Spring 2023
Additive manufacturing, the industrial name of 3D printing, pertains to the general class of technologies that, using computer-created (CAD) solid models as input, creates three-dimensional (3D) artifacts through the successive formation of materials. Students will learn the engineering principles and frontiers of additive manufacturing systems and their applications to transforming the rapid prototyping to the paradigm of Additive Manufacturing (AM) for creating functional parts, materials and assembly. Students will apply their learning through class projects wherein they will design novel products via AM, design new AM systems and manufacturing strategies for novel materials. Class will also explore advanced design topics enabled by AM

Rules & Requirements

Prerequisites: PHYSICS 7A (recommended), MAT SCI 45, MEC ENG C85/CIV ENG C30, or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Zheng

MAT SCI 128 Modern Structural Materials and Sustainability 3 Units

Terms offered: Not yet offered
The course offers a comprehensive overview of processing, characterization, and property testing
methods, as well as recycling processes for structural materials, including metals, alloys, and structural
ceramics. The objective of this course is to provide foundational knowledge of the relationships
between the microstructures of the materials and their mechanical properties that make them suitable
for structural applications. This course will also address sustainability challenges in structural materials
and discuss how material selection, material design strategies, fabrication, and recycling methods
have evolved to meet sustainability goals.

Rules & Requirements

Prerequisites: Mat Sci 45 or equivalent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Kang

MAT SCI 129 Experimental Materials Science of Thin Films and Coatings 3 Units

Terms offered: Spring 2022
This course covers the fundamental experimental materials science and processing
of thin film and coatings that incorporates fundamental knowledge of materials transport,
accumulation, defects and epitaxy. Through this course, an understanding of the fundamental
physical and chemical processes which are involved in crystal growth and thin film fabrication
will be gained. Important synthesis and processing techniques used for the fabrication of
electronic and photonic devices will be discussed. Finally, it will provide an
understanding of how material characteristics are influenced by processing and deposition
conditions. This course addresses current challenges and future needs of
the semiconductor and coating industries.
Objectives & Outcomes

Student Learning Outcomes: The development of proper protocols for data collection, analysis, and dissemination.
To apply this knowledge to scholarly report writing and the hypothesis driven insights and conclusions.
To familiarize students with some of the important experimental methods growth of materials.
To gain an understanding of how material characteristics are influenced by processing and deposition
conditions of thin films and coatings.
To gain an understanding of the fundamental physical and chemical processes which are involved in
crystal growth and thin film fabrication.

Rules & Requirements

Prerequisites: MAT SCI 45, MAT SCI 104, and MAT SCI 125; or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Al Balushi

MAT SCI 130 Experimental Materials Science and Design 3 Units

Terms offered: Fall 2023, Fall 2022, Fall 2021
This course provides a culminating experience for students approaching completion of the materials science and engineering curriculum. Laboratory experiments are undertaken in a variety of areas from the investigations on semiconductor materials to corrosion science and elucidate the relationships among structure, processing, properties, and performance. The principles of materials selection in engineering design are reviewed.
Rules & Requirements

Prerequisites: Senior standing or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

MAT SCI 131 Additive Manufacturing Processes and Systems for Advanced Materials 3 Units

Terms offered: Fall 2025, Fall 2024
In this course, students will learn the engineering principles, system designs, process dynamics and construction of advanced additive fabrication systems. Students will explore the process-structure-property relationships for various commercial and custom additive manufacturing processes for polymer, metal, ceramic, composites and beyond. Additionally, students will explore the digital design and manufacturing of 3D topologies, cellular materials and metamaterials enabled by additive processes. In addition to gaining theoretical and hands-on access to AM technologies, students will apply their learning through design projects wherein they will create novel materials or engineering products via additive manufacturing processes.
Rules & Requirements

Prerequisites: ENGIN 29 (recommended); MAT SCI 45; MEC ENG C85; PHYSICS 7A (recommended); ENGIN 26 (optional); or instructor's permission

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructor: Zheng

MAT SCI 136 Materials in Energy Technologies 4 Units

Terms offered: Fall 2021, Fall 2019, Fall 2017
In many, if not all, technologies, it is materials that play a crucial, enabling role. This course examines potentially sustainable technologies, and the materials properties that enable them. The science at the basis of selected energy technologies are examined and considered in case studies.

Rules & Requirements

Prerequisites: Junior or above standing in Materials Science and Engineering or related field

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Materials Science and Engineering 126

MAT SCI 140 Nanomaterials for Scientists and Engineers 3 Units

Terms offered: Spring 2022, Spring 2020, Spring 2015
This course introduces the fundamental principles needed to understand the behavior of materials at the nanometer length scale and the different classes of nanomaterials with applications ranging from information technology to biotechnology. Topics include introduction to different classes of nanomaterials, synthesis and characterization of nanomaterials, and the electronic, magnetic, optical, and mechanical properties of nanomaterials.

Rules & Requirements

Prerequisites: PHYSICS 7C and MAT SCI 45. MAT SCI 102 recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Zheng

MAT SCI C150 Introduction to Materials Chemistry 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
The application of basic chemical principles to problems in materials discovery, design, and characterization will be discussed. Topics covered will include inorganic solids, nanoscale materials, polymers, and biological materials, with specific focus on the ways in which atomic-level interactions dictate the bulk properties of matter.

Rules & Requirements

Prerequisites: CHEM 104A. CHEM 104B recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Also listed as: CHEM C150

MAT SCI 151 Polymeric Materials 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
This course is designed for upper division undergraduate and graduate students to gain a fundamental understanding of the science of polymeric materials. Beginning with a treatment of ideal polymeric chain conformations, it develops the thermodynamics of polmyer blends and solutions, the modeling of polymer networks and gelations, the dynamics of polymer chains, and the morphologies of thin films and other dimensionally-restricted structures relevant to nanotechnology.

Rules & Requirements

Prerequisites: CHEM 1A or MAT SCI 45. MAT SCI 103 is recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Xu

MAT SCI C157 Nanomaterials in Medicine 3 Units

Terms offered: Fall 2022, Fall 2021, Fall 2020
Nanomedicine is an emerging field involving the use of nanoscale materials for therapeutic and diagnostic purposes. Nanomedicine is a highly interdisciplinary field involving chemistry, materials science, biology and medicine, and has the potential to make major impacts on healthcare in the future. This upper division course is designed for students interested in learning about current developments and future trends in nanomedicine. The overall objective of the course is to introduce major aspects of nanomedicine including the selection, design and testing of suitable nanomaterials, and key determinants of therapeutic and diagnostic efficacy. Organic, inorganic and hybrid nanomaterials will be discussed in this course.

Objectives & Outcomes

Course Objectives: To identify an existing or unmet clinical need and identify a nanomedicine that can provide a solution
To learn about chemical approaches used in nanomaterial synthesis and surface modification.
To learn how to read and critique the academic literature.
To understand the interaction of nanomaterials with proteins, cells, and biological systems.

Rules & Requirements

Prerequisites: MAT SCI 45 or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Messersmith

Also listed as: BIO ENG C157

MAT SCI 159 Introduction to Soft Matter 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
Soft matter is ubiquitous in synthetic materials and plays a central role in living systems. This
course aims to provide students with an introduction to the physics that govern the structure and
dynamics of soft mater systems, including polymers, colloids, surfactants, membranes, and active
matter. A particular emphasis will be placed on connecting a microscopic physical picture to the
emergent phenomena and properties of interest using scaling theory and statistical mechanics.
Specific topics will include Brownian motion and colloidal dynamics, the depletion force, polymer
chain conformation, rubber elasticity; and surfactant and liquid crystal thermodynamics.

Rules & Requirements

Prerequisites: ENGIN 40, PHYSICS 5C, CHEM 120B, CHEM ENG 141, or MECH ENG 40

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

Instructor: Omar

MAT SCI H194 Honors Undergraduate Research 1 - 4 Units

Terms offered: Fall 2016, Spring 2016, Fall 2015
Students who have completed a satisfactory number of advanced courses with a grade-point average of 3.3 or higher may pursue original research under the direction of one of the members of the staff. A maximum of 3 units of H194 may be used to fulfill technical elective requirements in the Materials Science and Engineering program or double majors (unlike 198 or 199, which do not satisfy technical elective requirements). Final report required.

Rules & Requirements

Prerequisites: Upper division technical GPA of 3.3 or higher and consent of instructor and adviser

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of independent study per week

Summer: 8 weeks - 1.5-7.5 hours of independent study per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

MAT SCI 195 Special Topics for Advanced Undergraduates 1 Unit

Terms offered: Spring 2012, Spring 2011, Spring 2010
Group study of special topics in materials science and engineering. Selection of topics for further study of underlying concepts and relevent literature, in consultion with appropriate faculty members.

Rules & Requirements

Prerequisites: Upper division standing and good academic standing. (2.0 gpa and above)

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of directed group study per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

MAT SCI 198 Directed Group Studies for Advanced Undergraduates 1 - 4 Units

Terms offered: Spring 2019, Fall 2018, Spring 2016
Group studies of selected topics.

Rules & Requirements

Prerequisites: Upper division standing in Engineering

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

MAT SCI 199 Supervised Independent Study 1 - 4 Units

Terms offered: Spring 2023, Fall 2022, Spring 2022
Supervised independent study. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Rules & Requirements

Prerequisites: Consent of instructor and major adviser

Credit Restrictions: Course may be repeated for a maximum of four units per semester.

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of independent study per week

Summer:
6 weeks - 1-5 hours of independent study per week
8 weeks - 1-4 hours of independent study per week

Additional Details

Subject/Course Level: Materials Science and Engineering/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

MAT SCI 200A Survey of Materials Science 4 Units

Terms offered: Fall 2025, Fall 2023, Fall 2022
A survey of Materials Science at the beginning graduate level, intended for those who did not major in the field as undergraduates. Focus on the nature of microstructure and its manipulation and control to determine engineering properties. Reviews bonding, structure and microstructure, the chemical, electromagnetic and mechanical properties of materials, and introduces the student to microstructural engineering.
Rules & Requirements

Prerequisites: Graduate standing or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

MAT SCI 201A Thermodynamics and Phase Transformations in Solids 4 Units

Terms offered: Fall 2024, Fall 2023, Fall 2022
The laws of thermodynamics, fundamental equations for multicomponent elastic solids and electromagnetic media, equilibrium criteria. Application to solution thermodynamics, point defects in solids, phase diagrams. Phase transitions, Landau rule, symmetry rules. Interfaces, nucleation theory, elastic effects. Kinetics: diffusion of heat, mass and charge; coupled flows.
Rules & Requirements

Prerequisites: MAT SCI 102, MAT SCI 103, ENGIN 40, or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Ceder

MAT SCI 201B Thermodynamics, Phase Behavior and Transport Phenomena in Materials 4 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
This course will cover the laws of classical thermodynamics, principles of statistical mechanics, and laws governing the transport of mass and momentum in materials. Applications will include the construction of equilibrium and nonequilibrium phase diagrams and the kinetics of phase transformations in both soft and hard materials.
Rules & Requirements

Prerequisites: 102, 103, Engineering 115 or consent of instructor. 201A is a prerequisite to 201B

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Omar

MAT SCI 202 Crystal Structure and Bonding 4 Units

Terms offered: Spring 2025, Spring 2024, Spring 2022
Regular, irregular arrays of points, spheres; lattices, direct, reciprocal; crystallographic point and space groups; atomic structure; bonding in molecules; bonding in solids; ionic (Pauling rules), covalent, metallic bonding; structure of elements, compounds, minerals, polymers.
Hours & Format

Fall and/or spring: 15 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Chrzan

MAT SCI 204 Materials Characterization 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
This 3-unit course will cover basic principles and techniques used for the characterization of engineering materials. The course is designed to introduce graduate students to the basic principles of structural, chemical and property characterization techniques. The course is grounded in modern x-ray diffraction and electron microscopy techniques for characterization of the chemical and structural properties of a material. The course introduces the fundamental theoretical framework for diffraction, spectrometry and imaging methods.

Objectives & Outcomes

Course Objectives: Materials characterization lies at the heart of understanding the property-structure-processing relationships of materials. The goal of the course is to prepare graduate students from materials science to understand the basic principles behind material characterization tools and techniques. More specifically, this class will provide students (1) a thorough introduction to the principles and practice of diffraction, (2) introductory exposure to a range of common characterization methods for the determination of structure and composition of solids.

Student Learning Outcomes: A successful student will learn (1) the theory of x-ray and electron diffraction, (2) basic elements of electron microscopy, (3) basic aspects of spectroscopy.

Rules & Requirements

Prerequisites: MAT SCI 102- a basic knowledge of structure, bonding and crystallography will be assumed

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructors: Scott, Minor

MAT SCI 204D Materials Characterization 1 Unit

Terms offered: Spring 2024, Spring 2023, Spring 2022
This 1-unit course will introduce specialized techniques used for the characterization of engineering materials beyond routine x-ray diffraction and electron microscopy. The course is designed to complement a basic course in x-ray diffraction and electron microscopy by introducing graduate students to characterization methods such as ion beam analysis, magnetic measurements, synchrotron techniques, scanning probe techniques, neutron scattering, optical spectroscopy and dynamic characterization.

Objectives & Outcomes

Course Objectives: Materials characterization lies at the heart of understanding the property-structure-processing relationships of materials. The goal of the course is to prepare graduate students from materials science and related disciplines to understand the basic principles behind ion beam analysis, magnetic measurements, synchrotron techniques, scanning probe techniques, neutron scattering, optical spectroscopy and dynamic characterization.

Rules & Requirements

Prerequisites: Graduate standing in engineering, physics or chemistry; MAT SCI 102; and concurrent enrollment in MAT SCI 204

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of discussion per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructors: Scott, Minor

MAT SCI 205 Defects in Solids 3 Units

Terms offered: Spring 2022, Spring 2020, Spring 2014
Many properties of solid state materials are determined by lattice defects. This course treats in detail the structure of crystal defects, defect formation and annihilation processes, and the influence of lattice defects on the physical and optical properties of crystalline materials.

Rules & Requirements

Prerequisites: PHYSICS 7C or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Ramesh

MAT SCI C208 Biological Performance of Materials 4 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
This course is intended to give students the opportunity to expand their knowledge of topics related to biomedical materials selection and design. Structure-property relationships of biomedical materials and their interaction with biological systems will be addressed. Applications of the concepts developed include blood-materials compatibility, biomimetic materials, hard and soft tissue-materials interactions, drug delivery, tissue engineering, and biotechnology.
Objectives & Outcomes

Course Objectives: The course is separated into four parts spanning the principles of synthetic materials and surfaces, principles of biological materials, biological performance of materials and devices, and state-of-the-art materials design. Students are required to attend class and master the material therein. In addition, readings from the clinical, life and materials science literature are assigned. Students are encouraged to seek out additional reference material to complement the readings assigned. A mid-term examination is given on basic principles (parts 1 and 2 of the outline). A comprehensive final examination is given as well. The purpose of this course is to introduce students to problems associated with the selection and function of biomaterials. Through class lectures and readings in both the physical and life science literature, students will gain broad knowledge of the criteria used to select biomaterials, especially in devices where the material-tissue or material-solution interface dominates performance. Materials used in devices for medicine, dentistry, tissue engineering, drug delivery, and the biotechnology industry will be addressed.

This course also has a significant design component (~35%). Students will form small teams (five or less) and undertake a semester-long design project related to the subject matter of the course. The project includes the preparation of a paper and a 20 minute oral presentation critically analyzing a current material-tissue or material-solution problem. Students will be expected to design improvements to materials and devices to overcome the problems identified in class with existing materials.

Student Learning Outcomes: Work independently and function on a team, and develop solid communication skills (oral, graphic & written) through the class design project.

- Develop an understanding of the social, safety and medical consequences of biomaterial use and regulatory issues associated with the selection of biomaterials in the context of the silicone breast implant controversy and subsequent biomaterials crisis.
- Design experiments and analyze data from the literature in the context of the class design project.
- Understanding of the origin of surface forces and interfacial free energy, and how they contribute to the development of the biomaterial interface and ultimately biomaterial performance.
- Apply math, science & engineering principles to the understanding of soft materials, surface chemistry, DLVO theory, protein adsorption kinetics, viscoelasticity, mass diffusion, and molecular (i.e., drug) delivery kinetics.
- Apply core concepts in materials science to solve engineering problems related to the selection biomaterials, especially in devices where the material-tissue or material-solution interface dominates performance.

Rules & Requirements

MAT SCI C211 Mechanics of Solids 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
Mechanical response of materials: Simple tension in elastic, plastic and viscoelastic members. Continuum mechanics: The stress and strain tensors, equilibrium, compatibility. Three-dimensional elastic, plastic and viscoelastic problems. Thermal, transformation, and dealloying stresses. Applications: Plane problems, stress concentrations at defects, metal forming problems.
Rules & Requirements

Prerequisites: Graduate standing or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Govindjee

Also listed as: CIV ENG C231

MAT SCI C212 Deformation and Fracture of Engineering Materials 4 Units

Terms offered: Spring 2025, Spring 2024, Spring 2022
This course covers deformation and fracture behavior of engineering materials for both monotonic and cyclic loading conditions.
Rules & Requirements

Prerequisites: Civil Engineering 130, Engineering 45

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructors: Ritchie, Pruitt, Komvopoulos

Formerly known as: Materials Science and Engineering C212, Mechanical Engineering C225

Also listed as: MEC ENG C225

MAT SCI 213 Environmental Effects on Materials Properties and Behavior 3 Units

Terms offered: Fall 2014, Fall 2013, Fall 2012
Review of electrochemical aspects of corrosion; pitting and crevice corrosion; active/passive transition; fracture mechanics approach to corrosion; stress corrosion cracking; hydrogen embrittlement; liquid metal embrittlement; corrosion fatigue; testing methods.

Rules & Requirements

Prerequisites: MSE 112 or equivalent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Devine

MAT SCI C214 Micromechanics 3 Units

Terms offered: Fall 2023, Spring 2022, Spring 2018
Basic theories, analytical techniques, and mathematical foundations of micromechanics. It includes 1. physical micromechanics, such as mathematical theory of dislocation, and cohesive fracture models; 2. micro-elasticity that includes Eshelby's eigenstrain theory, comparison variational principles, and micro-crack/micro-cavity based damage theory; 3. theoretical composite material that includes the main methodologies in evaluating overall material properties; 4. meso-plasticity that includes meso-damage theory, and the crystal plasticity; 5. homogenization theory for materials with periodic structures.

Rules & Requirements

Prerequisites: Consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructors: Govindjee, Li

Also listed as: CIV ENG C236

MAT SCI 215 Computational Materials Science 3 Units

Terms offered: Fall 2021, Fall 2019, Spring 2019
Introduction to computational materials science. Development of atomic scale simulations for materials science applications. Application of kinetic Monte Carlo, molecular dynamics, and total energy techniques to the modeling of surface diffusion processes, elastic constants, ideal shear strengths, and defect properties. Introduction to simple numerical methods for solving coupled differential equations and for studying correlations.

Rules & Requirements

Prerequisites: Graduate standing in engineering or sciences, or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructors: Chrzan, Asta, Ceder, Sherburne

MAT SCI C216 Macromolecular Science in Biotechnology and Medicine 4 Units

Terms offered: Spring 2024, Spring 2023, Spring 2022
Overview of the problems associated with the selection and function of polymers used in biotechnology and medicine. Principles of polymer science, polymer synthesis, and structure-property-performance relationships of polymers. Particular emphasis is placed on the performance of polymers in biological environments. Interactions between macromolecular and biological systems for therapy and diagnosis. Specific applications will include drug delivery, gene therapy, tissue engineering, and surface engineering.

Rules & Requirements

Prerequisites: BIO ENG 115. Open to seniors with consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Healy

Also listed as: BIO ENG C216

MAT SCI 217 Properties of Dielectric and Magnetic Materials 3 Units

Terms offered: Spring 2021, Fall 2020, Spring 2017
Introduction to the physical principles underlying the dielectric and magnetic properties of solids. Processing-microstructure-property relationships of dielectric materials, including piezoelectric, pyroelectric, and ferroelectric oxides, and of magnetic materials, including hard- and soft ferromagnets, ferrites and magneto-optic and -resistive materials. The course also covers the properties of grain boundary devices (including varistors) as well as ion-conducting and mixed conducting materials for applications in various devices such as sensors, fuel cells, and electric batteries.

Rules & Requirements

Prerequisites: PHYSICS 7A, PHYSICS 7B, and PHYSICS 7C; or PHYSICS 7A, PHYSICS 7B, and consent of instructor; MAT SCI 111 is recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Martin

MAT SCI 218 Optical Materials and Devices 3 Units

Terms offered: Spring 2025, Spring 2024, Fall 2021
This course provides an overview of the fundamental physics, processing and device applications of optical materials, including conventional and van der Waals semiconductors, plasmonic materials, metamaterials, etc. This course gives graduate students an introduction of the recent developments in the research fields of optical materials and nanophotonics. Topics covered include:
Basic concepts on light-matter interactions. Excitons, biexcitons and trions. Polaritons: plasmons, phonons and magnons. Plasmonic materials and their applications. Near field optics and its application in plasmonics. Raman spectroscopy and surface/tip enhanced Raman (SERS/TERS). Metamaterials: negative refraction, super-resolution imaging and optical invisibility.

Objectives & Outcomes

Course Objectives: This course is designed to give graduate students an introduction of the recent developments in the research fields of optical materials and nanophotonics.

Rules & Requirements

Prerequisites: Graduate standing in engineering, physics or chemistry

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Yao

MAT SCI 223 Semiconductor Materials 3 Units

Terms offered: Fall 2024, Fall 2022, Fall 2021
Semiconductor physics, doping, conduction, and light-semiconductor interactions. Metal-semiconductor interfaces, heterojunctions and basic device physics. Thermal, electrical, and optical properties and applications. Major electronic and optical methods for the analysis of semiconductors.

Rules & Requirements

Prerequisites: PHYSICS 7C or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructors: Dubon, Wu

MAT SCI 224 Magnetism and Magnetic Materials 3 Units

Terms offered: Fall 2018, Fall 2016, Fall 2014
This course covers the fundamentals of magnetism and magnetic materials in the first two-thirds of the class. Topics include magnetic moments in classical versus quantum mechanical pictures, diamagnetism, paramagnetism, crystal field environments, dipolar and exchange interactions, ferromagnetism, antiferromagnetism, magnetic domains, magnetic anisotropy, and magnetostriction. Magnetic materials covered include transition metals, their alloys and oxides, rare earths and their oxides, organic and molecular magnets. Throughout the course, experimental techniques in magnetic characterization will be discussed. The second part of the course will focus on particular magnetic materials and devices that are of technological interest (e.g., magnetoresistive and magneto-optical materials and devices). Additional topics include biomagnetism and spin glasses.
Rules & Requirements

Prerequisites: 111 or equivalent or consent of instructor; 117 recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

MAT SCI C225 Thin-Film Science and Technology 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
Thin-film nucleation and growth, microstructural evolution and reactions. Comparison of thin-film deposition techniques. Characterization techniques. Processing of thin films by ion implantation and rapid annealing. Processing-microstructure-property-performance relationships in the context of applications in information storage, ICs, micro-electromechanical systems and optoelectronics.
Rules & Requirements

Prerequisites: Graduate standing in engineering, physics, chemistry, or chemical engineering

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructors: Wu, Dubon

Also listed as: AST C225

MAT SCI C226 Photovoltaic Materials; Modern Technologies in the Context of a Growing Renewable Energy Market 3 Units

Terms offered: Fall 2015, Spring 2013, Spring 2011
This technical course focuses on the fundamentals of photovoltaic energy conversion with respect to the physical principals of operation and design of efficient semiconductor solar cell devices. This course aims to equip students with the concepts and analytical skills necessary to assess the utility and viability of various modern photovoltaic technologies in the context of a growing global renewable energy market.
Rules & Requirements

Prerequisites: Material Science and Mineral Engineering 111 or 123 or equivalent. Should have a firm foundation in electronic and optical props of semiconductors and basic semiconductor device physics

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Also listed as: ENE,RES C226

MAT SCI 228 Additive Fabrication Processes and Systems for Advanced Materials 3 Units

Terms offered: Spring 2025, Fall 2023
This course covers engineering principles, system designs, process dynamics and construction of advanced additive manufacturing (AM) techniques. Students will explore the process-structure-property relationships for 3D printing of polymer, metal, ceramic, composites and beyond. The course will introduce 3D topology, cellular and metamaterials enabled by AM. Through course projects, students will create new materials or engineering products using AM processes
Rules & Requirements

Prerequisites: Physics 7A, Engineering 27, Engineering 29, Materials Science and Engineering 45, Mechanical Engineering C85, or instructor's permission

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Zheng

MAT SCI 241 Electron Microscopy Laboratory 4 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
This course covers the basic principles of techniques used in the characterization of engineering
materials by electron microscopy, diffraction, and spectroscopy. In addition to lectures on the
theory of electron diffraction and microscopy, there is a hands-on laboratory that offers
detailed practical training in the operation of the transmission electron microscope (TEM) in all
of its major functional diffraction and imaging modes.
Rules & Requirements

Prerequisites: MAT SCI 104

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of laboratory and 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructors: Gronsky, Minor

MAT SCI 241B Electron Microscopy Laboratory 2 Units

Terms offered: Not yet offered
This course covers the basic principles of techniques used in the characterization of engineering
materials by electron microscopy, diffraction, and spectroscopy. In addition to lectures on the
theory of electron diffraction and microscopy, there is a hands-on laboratory that offers
detailed practical training in the operation of the transmission electron microscope (TEM) in all
of its major functional diffraction and imaging modes.
Rules & Requirements

Prerequisites: Completed MSE 204 or concurrently enroll in MSE 204

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Zheng

MAT SCI 242 Advanced Spectroscopy 3 Units

Terms offered: Spring 2025, Spring 2023, Spring 2021
Advanced structural and functional characterization of materials using spectroscopic methods. Techniques to be discussed include state of the art optical, x-ray and ion-beam spectroscopies used for characterization of advanced materials and devices.
Rules & Requirements

Prerequisites: MAT SCI 204 or MAT SCI 205; or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 3 hours of laboratory per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

MAT SCI 243 Electronic Materials Characterization 3 Units

Terms offered: Fall 2025, Spring 2025, Spring 2024
This course provides a detailed overview of important characterization techniques used to
study the electrical, optical, magnetic, and piezoelectric properties of thin films, with an emphasis on
semiconductors, for device applications. Key properties that can be extracted from each technique will be
described and compared. Important models to extract key materials characteristics from raw data
collected through ex situ and in situ techniques will also be introduced. This course emphasizes
characterization techniques commonly available in modern laboratory settings and in industry.
Objectives & Outcomes

Course Objectives: To bring students to an appreciation of the power of combining characterization techniques.
To familiarize students with some of the important methods of materials and device characterization
useful in electronic, magnetic, optical and piezoelectric materials research.
To help students acquire the knowledge and hone the thought processes necessary to choose and use
materials characterization techniques wisely.
To help students to become aware of the development of new characterization technologies, how to
find them, and how to judge them.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Al Balushi

MAT SCI C250 Nanomaterials in Medicine 3 Units

Terms offered: Fall 2022, Fall 2021, Fall 2020
The course is designed for graduate students interested in the emerging field of nanomedicine. The course will involve lectures, literature reviews and proposal writing. Students will be required to formulate a nanomedicine research project and write an NIH-style proposal during the course. The culmination of this project will involve a mock review panel in which students will serve as peer reviewers to read and evaluate the proposals.

Objectives & Outcomes

Course Objectives: To review the current literature regarding the use of nanomaterials in medical applications; (2) To describe approaches to nanomaterial synthesis and surface modification; (3) To understand the interaction of nanomaterials with proteins, cells and biological systems; (4) To familiarize students with proposal writing and scientific peer review.

Student Learning Outcomes: Students should be able to (1) identify the important properties of metal, polymer and ceramic nanomaterials used in healthcare; (2) understand the role of size, shape and surface chemistry of nanomaterials in influencing biological fate and performance; (3) understand common methods employed for surface modification of nanomaterials; (4) comprehend the range of cell-nanomaterial interactions and methods for assaying these interactions; (5) read and critically review the scientific literature relating to nanomedicine; (6) formulate and design an experimental nanomedicine research project; (7) understand the principles of the peer review system.

Rules & Requirements

Prerequisites: Graduate Standing

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Messersmith

Also listed as: BIO ENG C250

MAT SCI 251 Polymer Surfaces and Interfaces 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2022
The course is designed for graduate students to gain a fundamental understanding of the surface and interfacial science of polymeric materials. Beginning with a brief introduction of the principles governing polymer phase behavior in bulk, it develops the thermodynamics of polymers in thin films and at interfaces, the characterization techniques to assess polymer behavior in thin films and at interfaces, and the morphologies of polymer thin films and other dimensionally-restricted structures relevant to nanotechnology and biotechnology. Field trips to national user facilities, laboratory demonstrations and hands-on experiments, and guest lectures will augment the courses lectures.

Rules & Requirements

Prerequisites: Chemistry 1A or Engineering 5; Material Science and Engineering 151 recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Xu

MAT SCI 260 Surface Properties of Materials 3 Units

Terms offered: Fall 2024, Spring 2023, Fall 2020
Thermodynamics of surfaces and phase boundaries, surface tension of solids and liquids, surface activity, adsorption, phase equilibria, and contact angles, electrochemical double layers at interfaces, theory, and applications.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Salmeron

Formerly known as: Mineral Engineering 260

MAT SCI C261 Introduction to Nano-Science and Engineering 3 Units

Terms offered: Spring 2015, Spring 2013, Spring 2012
A three-module introduction to the fundamental topics of Nano-Science and Engineering (NSE) theory and research within chemistry, physics, biology, and engineering. This course includes quantum and solid-state physics; chemical synthesis, growth fabrication, and characterization techniques; structures and properties of semiconductors, polymer, and biomedical materials on nanoscales; and devices based on nanostructures. Students must take this course to satisfy the NSE Designated Emphasis core requirement.

Rules & Requirements

Prerequisites: Major in physical science such as chemistry, physics, etc., or engineering; consent of advisor or instructor

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructors: Gronsky, S.W. Lee, Wu

Also listed as: BIO ENG C280/NSE C201/PHYSICS C201

MAT SCI C286 Modeling and Simulation of Advanced Manufacturing Processes 3 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024, Spring 2024
This course provides the student with a modern introduction to the basic industrial practices, modeling techniques, theoretical background, and computational methods to treat classical and cutting edge manufacturing processes in a coherent and self-consistent manner.

Objectives & Outcomes

Course Objectives: An introduction to modeling and simulation of modern manufacturing processes.

Rules & Requirements

Prerequisites: An undergraduate course in strength of materials or 122

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Zohdi

Also listed as: MEC ENG C201/NUC ENG C226

MAT SCI C287 Computational Design of Multifunctional/Multiphysical Composite Materials 3 Units

Terms offered: Spring 2012
The course is self-contained and is designed in an interdisciplinary manner for graduate students in engineering, materials science, physics, and applied mathematics who are interested in methods to accelerate the laboratory analysis and design of new materials. Examples draw primarily from various mechanical, thermal, diffusive, and electromagnetic applications.

Rules & Requirements

Prerequisites: An undergraduate degree in the applied sciences or engineering

Hours & Format

Fall and/or spring: 15 weeks - 3-3 hours of lecture and 0-1 hours of discussion per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Zohdi

Also listed as: MEC ENG C202

MAT SCI 290A Special Topics in Materials Science 3 Units

Terms offered: Fall 2016, Fall 2015, Fall 2014
Lectures and appropriate assignments on fundatmental or applied topics of current interest in materials science and engineering.

Rules & Requirements

Prerequisites: Graduate standing

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Formerly known as: 290M

MAT SCI 290M Special Problems in Materials Science 3 Units

Terms offered: Spring 2009, Spring 2008, Spring 2006
Selected topics in the thermodynamic, kinetic or phase transformation behavior of solid materials. Topics will generally be selected based on student interest in Mat Sci 201A-201B. The course provides an opportunity to explore subjects of particular interest in greater depth.
Rules & Requirements

Prerequisites: MAT SCI 201A and MAT SCI 201B; or consent of instructor

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Letter grade.

Instructor: Morris

MAT SCI 296A Independent Research for Five-Year BS/MS Program 1 - 2 Units

Terms offered: Fall 2024, Fall 2023, Fall 2022
This is the first semester of a two-course sequence for those majors in the five year BS/MS program. Students are expected to formulate, develop and initiate an independent research project under the supervision of a research advisor. This course will meet once at the beginning of the semester to outline the expectations of the course. Periodic meetings covering topics such as maintaining a lab notebook, effective oral communication, and writing a journal publication will be scheduled. Students will be expected to keep a laboratory notebook outlining their progress during the semester. A progress report will be due at the end of Materials Science and Engineering 296A. Students will also be expected to give an oral presentation, describing their research project and progress toward their goals in front of their peers at the end of the semester.
Rules & Requirements

Prerequisites: Acceptance into the five year BS/MS program

Hours & Format

Fall and/or spring: 15 weeks - 1-2 hours of independent study per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.

MAT SCI 296B Independent Research for Five-Year BS/MS Program 1 - 2 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
This is the second semester of a two-course sequence for those majors in the five year BS/MS program. Students are expected to complete an independent research project under the supervision of a research advisor initiated in Materials Science and Engineering 296A. This course will meet once at the beginning of the semester to outline the expectations of the course. Periodic meetings covering topics such as data analysis and design of experiment will be scheduled. Students will be expected to keep a laboratory notebook outlining their progress during the semester. A final report in journal publication form will be due at the end of the semester. Each student will also give a final presentation on his/her research project at the end of the semester.
Rules & Requirements

Prerequisites: 296A

Hours & Format

Fall and/or spring: 15 weeks - 1-2 hours of independent study per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.

MAT SCI 298 Group Studies, Seminars, or Group Research 1 - 8 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
Advanced study in various subjects through special seminars on topics to be selected each year, informal group studies of special problems, group participation in comprehensive design problems or group research on complete problems for analysis and experimentation.
Rules & Requirements

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-8 hours of seminar per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.

MAT SCI 299 Individual Study or Research 1 - 12 Units

Terms offered: Fall 2025, Summer 2025, Summer 2025 10 Week Session

Individual investigation of advanced materials science problems.
Rules & Requirements

Prerequisites: Graduate standing in engineering

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-12 hours of independent study per week

Summer:
6 weeks - 1-12 hours of independent study per week
8 weeks - 1-12 hours of independent study per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.

MAT SCI 375A Science and Engineering Pedagogy 2 Units

Terms offered: Fall 2016, Fall 2015, Fall 2014
Discussion and research of pedagogical issues. Supervised practice teaching in materials science and engineering.
Rules & Requirements

Prerequisites: Graduate standing and appointment, or interest in appointment, as a graduate student instructor

Hours & Format

Fall and/or spring: 15 weeks - 1-2 hours of seminar per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Professional course for teachers or prospective teachers

Grading: Offered for satisfactory/unsatisfactory grade only.

Instructor: Gronsky

Formerly known as: Material Science and Engineering 300

MAT SCI 375B Supervised Teaching of Materials Science and Engineering 1 Unit

Terms offered: Prior to 2007
Disucssion and research of pedagogical issues. Supervised practice teaching in Materials and Science and Engineering.
Rules & Requirements

Prerequisites: Graduate standing and appointment, or interest in appointment, as a graduate student instructor

Hours & Format

Fall and/or spring: 15 weeks - 1-2 hours of seminar per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Professional course for teachers or prospective teachers

Grading: Offered for satisfactory/unsatisfactory grade only.

Formerly known as: Material Science and Engineering 300

MAT SCI 601 Individual Study for Master's Students 1 - 8 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
Individual study for the comprehensive or language requirements in consultation with the field adviser.
Rules & Requirements

Prerequisites: Graduate standing in engineering

Credit Restrictions: Course does not satisfy unit or residence requirements for master's degree.

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-8 hours of independent study per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate examination preparation

Grading: Offered for satisfactory/unsatisfactory grade only.

MAT SCI 602 Individual Study for Doctoral Students 1 - 8 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (and other doctoral degrees).

Rules & Requirements

Prerequisites: Graduate standing in engineering

Credit Restrictions: Course does not satisfy unit or residence requirements for doctoral degree.

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Additional Details

Subject/Course Level: Materials Science and Engineering/Graduate examination preparation

Grading: Offered for satisfactory/unsatisfactory grade only.

UGBA C5 Introduction to Entrepreneurship 2 Units

Terms offered: Fall 2022, Fall 2021, Fall 2020
This course offers students a taste of what it's really like to start a business. In addition to learning key foundational entrepreneurial concepts such as idea generation & evaluation, customer & product development, creating a business model, fundraising, marketing, and scaling & exiting a business, students will also hear from successful entrepreneurs who share their perspectives and best practices. Students will apply core concepts by working in teams to evaluate and select a venture idea that they will then develop throughout the semester.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Also listed as: L & S C5

UGBA 10X Foundations of Business 3 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
This team-taught introductory course to the four-year Spieker Undergraduate Business Program is grounded in the Haas Defining Leadership Principles. Covering business fundamentals, teamwork, and critical thinking, the course explores contemporary business topics along with their historical and conceptual foundations, and their social and psychological implications. The course includes two weekly lectures and one small section meeting, featuring hands-on individual and group exercises for practical application of the concepts. Regular guest speakers connect students to real-world business problems.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of laboratory per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA C12 The Berkeley Changemaker 2 - 3 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Spring 2025, Spring 2024, Fall 2023, Summer 2023 Second 6 Week Session
Berkeley Changemaker impact occurs across many fronts: scientific, artistic, social, and entrepreneurial. This course helps students identify as a Berkeley Changemaker and learn the critical thinking, communication, and collaboration skills to become one. Combining disciplines across UC Berkeley, the course also helps launch the Berkeley Discovery arc. Students develop their own leadership styles and discover how they can create and lead diverse teams to act upon the world. Values in Berkeley's DNA like Questioning the Status Quo and going Beyond Yourself support students in leading from whatever position they occupy, preparing them to leave their mark on campus, in their communities, or beyond. More at: http://changemaker.berkeley.edu.

Hours & Format

Fall and/or spring: 15 weeks - 2-2 hours of lecture and 0-1.5 hours of discussion per week

Summer:
6 weeks - 6-6 hours of lecture and 0-0 hours of discussion per week
8 weeks - 4-4 hours of lecture and 0-3 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Alternative to final exam.

Also listed as: L & S C12

UGBA 13 Berkeley Changemaker: Human Health 2 Units

Terms offered: Spring 2024, Fall 2022
Do you wonder how you might play a part in changing human health and improving the lives of others? Find your path with Berkeley Changemaker: Human Health. In this course you will apply the core principles of the Berkeley Changemaker curriculum by Critically exploring a full understanding of an important human health issue, Collaborating with diverse colleagues on a project team to investigate solutions using gold-standard discovery techniques, and Communicating what you've learned and providing thoughtful feedback to your classmates. Each week you will also research and then have a curated conversation with a changemaking expert on a range of human health topics, from startup solutions, to healthcare economics, to health equity issues.
Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

UGBA 24 Freshman Seminars 1 Unit

Terms offered: Spring 2025, Spring 2024, Spring 2023
The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.
Rules & Requirements

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of seminar per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Final exam required.

UGBA 39AC Philanthropy: A Cross-Cultural Perspective 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
This class will compare and contrast the variety of gift giving and sharing traditions that make up American philanthropy. Both the cultural antecedents and their expression in this country will be explored from five ethnic and racial groups: Native American, European American, African American, Hispanic American, and Asian American. The goal is to gain a greater understanding of the many dimensions of philanthropy as it is practiced in the United States today.
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 39AC

UGBA 39E Freshman/Sophomore Seminar 2 - 4 Units

Terms offered: Fall 2025, Fall 2024, Spring 2024
Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.
Rules & Requirements

Prerequisites: Priority given to freshmen and sophomores

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 2-4 hours of seminar per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Final exam required.

Formerly known as: Business Administration 39

UGBA 78G Developing Global Leadership Expertise 2 Units

Terms offered: Prior to 2007

This course is required for all freshmen in the Global Management Program at the Haas School of Business and limited to those students as well. The objective of this course is to provide students with an introduction to the type of leadership skills required to be a successful cross-cultural leader in today's increasingly complex global marketplace. The goal is for each student to begin developing a personalized global leadership "toolkit" that will continue to evolve over the next few years in the Global Management Program and ultimately as a business decision-maker with fiduciary responsibilities.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

UGBA 84 Sophomore Seminar 1 or 2 Units

Terms offered: Prior to 2007

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Rules & Requirements

Prerequisites: At discretion of instructor

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring:
5 weeks - 3-6 hours of seminar per week
10 weeks - 1.5-3 hours of seminar per week
15 weeks - 1-2 hours of seminar per week

Summer:
6 weeks - 2.5-5 hours of seminar per week
8 weeks - 1.5-3.5 hours of seminar per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Final exam required.

UGBA 88 Data and Decisions 2 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Spring 2025

The goal of this connector course is to provide an understanding of how data and statistical analysis can improve managerial decision-making. We will explore statistical methods for gleaning insights from economic and social data, with an emphasis on approaches to identifying causal relationships. We will discuss how to design and analyze randomized experiments and introduce econometric methods for estimating causal effects in non-experimental data. The course draws on a variety of business and social science applications, including advertising, management, online marketplaces, labor markets, and education. This course, in combination with the Data 8 Foundations course, satisfies the statistics prerequisite for admission to Haas.

Rules & Requirements

Prerequisites: One semester of Calculus (Math 16A or Math 51). Also, this is a Data Science connector course and may only be taken concurrently with or after completing Computer Science C8/Statistics C8/ Information C8

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Summer:
6 weeks - 5 hours of lecture per week
8 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Miller

UGBA C95B Introduction to the Biotechnology Field and Industry 2 Units

Terms offered: Spring 2019
This course offers an introduction to the field of biotechnology and will cover the history of the field, its impact on medicine and society, key methodologies, important therapeutic areas, and the range of career options available in the biopharmaceutical industry. In addition to lectures on innovation and entrepreneurship, students will hear from lecturers with expertise ranging from molecular biology to clinical trial design and interpretation. Several case studies of historically impactful scientists, entrepreneurs, and biotherapeutic companies will be presented. Students will work in teams to create and develop novel biotechnology company ideas to present in class. Intended for students interested in the Biology +Business program.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Alternative to final exam.

Instructors: Kirn, Lasky

Formerly known as: Molecular and Cell Biology C95B/Undergrad. Business Administration C95B

Also listed as: MCELLBI C75

UGBA 96 Lower Division Special Topics in Business Administration 1 - 4 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Fall 2024
Study in various fields of business administration for lower division students. Topics will vary from year to year and will be announced at the beginning of each semester.

Rules & Requirements

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer: 6 weeks - 2.5-10 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 98 Directed Group Study 1 - 4 Units

Terms offered: Spring 2015, Fall 2014, Spring 2014
Organized group study on topics selected by lower division students under the sponsorship and direction of a member of the Haas School of Business faculty.

Rules & Requirements

Credit Restrictions: Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog.

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Formerly known as: Business Administration 98

UGBA 100 Business Communication 2 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
Theory and practice of effective communication in a business environment. Students practice what they learn with oral presentations and written assignments that model real-life business situations.

Rules & Requirements

Prerequisites: Restricted to Undergraduate Business Administration Majors Only

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Summer:
6 weeks - 5 hours of lecture per week
8 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 101A Microeconomic Analysis for Business Decisions 3 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Spring 2025

Economic analysis applicable to the problems of business enterprises with emphasis on the determination of the level of prices, outputs, and inputs; effects of the state of the competitive environment on business and government policies.

Rules & Requirements

Prerequisites: Economics 1, Mathematics 1A (through Summer 2025) or 51 (as of Fall 2025) or 16A, Statistics W21, or equivalents

Credit Restrictions: Students will receive no credit for UGBA 101A after completing ECON 100A, ECON 101A, BUS ADM 110, ENVECON 100, BUS ADM S110, IAS 106, or POLECON 106. A deficient grade in UGBA 101A may be removed by taking POLECON 106, ECON 100A, ECON 101A, ENVECON 100, IAS 106, or POLECON 106.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 101B Macroeconomic Analysis for Business Decisions 3 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Spring 2025

Analysis of the operation of the market system with emphasis on the factors responsible for economic instability; analysis of public and business policies which are necessary as a result of business fluctuations.

Rules & Requirements

Prerequisites: Economics 1, Mathematics 1A or 16A, Statistics W21, or equivalents

Credit Restrictions: Students will receive no credit for UGBA 101B after completing ECON 100B, ECON 101B, BUS ADM 111, IAS 107, or POLECON 107. A deficient grade in UGBA 101B may be removed by taking ECON 100B, ECON 101B, IAS 107, or POLECON 107.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required, with common exam group.

Formerly known as: Business Administration 111

UGBA 102A Financial Accounting 3 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Spring 2025

The identification, measurement, and reporting of financial effects of events on enterprises, with a particular emphasis on business organization. Preparation and interpretation of balance sheets, income statements, and statements of cash flows.

Rules & Requirements

Credit Restrictions: Course not open for credit for students who are taking or have completed Undergraduate Business Administration W102A.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 102B Managerial Accounting 3 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Spring 2025

The uses of accounting systems and their outputs in the process of management of an enterprise. Classification of costs and revenue on several bases for various uses; budgeting and standard cost accounting; analyses of relevant costs and other data for decision making.

Rules & Requirements

Prerequisites: 102A

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 103 Introduction to Finance 4 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Summer 2025 Second 6 Week Session

Analysis and management of the flow of funds through an enterprise. Cash management, source and application of funds, term loans, types and sources of long-term capital. Capital budgeting, cost of capital, and financial structure. Introduction to capital markets.

Rules & Requirements

Prerequisites: 101A

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer:
6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week
8 weeks - 6 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 104 Introduction to Business Analytics 3 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Spring 2025

This course provides an introduction to several quantitative methods used to facilitate complex decision-making in business, with applications in many different industries, at different levels in the organization, and with different scopes of decisions. The power of the methods covered in this class is further enhanced by implementing them in spreadsheet software, which allows complex problems to be approached and solved in a straightforward and understandable manner.

Rules & Requirements

Prerequisites: Mathematics 1B or 16B, Statistics W21, or equivalents

Hours & Format

Fall and/or spring: 15 weeks - 1.5 hours of lecture and 1.5 hours of laboratory per week

Summer: 6 weeks - 2.5-7.5 hours of lecture and 2.5-0 hours of laboratory per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 105 Leading People 3 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Spring 2025

A general descriptive and analytical study of organizations from the behavioral science point of view. Problems of motivation, leadership, morale, social structure, groups, communications, hierarchy, and control in complex organizations are addressed. The interaction among technology, environment, and human behavior are considered. Alternate theoretical models are discussed.

Rules & Requirements

Credit Restrictions: Students will receive no credit for Undergrad. Business Administration 105 after completing Business Administration 150 or S150.

Hours & Format

Fall and/or spring: 15 weeks - 1.5-3 hours of lecture and 1.5-0 hours of discussion per week

Summer:
6 weeks - 4-8 hours of lecture and 4-0 hours of discussion per week
8 weeks - 3-6 hours of lecture and 3-0 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 106 Marketing 3 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Summer 2025 Second 6 Week Session
The evolution of markets and marketing; market structure; marketing cost and efficiency; public and private regulation; the development of marketing programs including decisions involving products, price, promotional distribution.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer:
6 weeks - 7.5 hours of lecture per week
8 weeks - 6 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 107 The Social, Political, and Ethical Environment of Business 3 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Spring 2025
Study and analysis of American business in a changing social and political environment. Interaction between business and other institutions. Role of business in the development of social values, goals, and national priorities. The expanding role of the corporation in dealing with social problems and issues.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 5-7.5 hours of lecture and 2.5-0 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 117 Special Topics in Economic Analysis and Policy 1 - 4 Units

Terms offered: Summer 2025 Second 6 Week Session, Spring 2025, Fall 2018
A variety of topics in economic analysis and policy with emphasis on current problems and research.

Rules & Requirements

Prerequisites: 101A-101B or equivalents

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer: 6 weeks - 2.5-10 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 119

UGBA 118 International Trade 3 Units

Terms offered: Fall 2024, Fall 2023, Fall 2022
This course will develop models for understanding the economic causes and effects of international trade, will investigate the effects of economic policies that inhibit trade, and will examine the political economy of trade. By integrating the findings of the latest theoretical and empirical research in international economics, this course help students learn how to explore the current political debates in the U.S. and elsewhere regarding the benefits and costs of international trade.

Rules & Requirements

Prerequisites: Undergraduate Business Administration 101A or equivalent

Credit Restrictions: Students will receive no credit for Undergraduate Business Administration 118 after taking Economics 181 or Economics C181/Environmental Economics and Policy C181.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 120AA Intermediate Financial Accounting 1 4 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Fall 2024

This Course introduces the student to concepts, theory and applications of financial accounting. The topics covered include accrual accounting concepts, financial statement analysis, inventory valuations, capital assets and their corresponding depreciation and impairment. Attention is given to examples on current reporting practices and to the study of reporting requirements promulgated by the Financial Accounting Standards Board ("FASB") with comparison to the International Accounting Standards Board ("IASB").

Rules & Requirements

Prerequisites: 102A

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 120AB Intermediate Financial Accounting 2 4 Units

Terms offered: Summer 2025 First 6 Week Session, Spring 2025, Summer 2024 First 6 Week Session

This course expands students' knowledge of the concepts, theory, and application of financial accounting. It continues the technical accounting sequence, which also includes UGBA 120AA, Intermediate Accounting 1 and UGBA 120B, Advanced Financial Accounting. Topics include an in-depth treatment of the financing elements of the balance sheet and the income statement, as well as a detailed examination of the statement of cash flows.

Rules & Requirements

Prerequisites: UGBA 102A is required. UGBA 120AA is recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 120B Advanced Financial Accounting 4 Units

Terms offered: Summer 2025 Second 6 Week Session, Fall 2024, Summer 2024 Second 6 Week Session

Continuation of 120A. Sources of long term capital; funds statements, financial analysis, accounting for partnerships, consolidated financial statements, adjustments of accounting data using price indexes; accounting for the financial effects of pension plans; other advanced accounting problems.

Rules & Requirements

Prerequisites: UGBA 120AA and 120AB are recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 121 Federal Income Tax Accounting 4 Units

Terms offered: Summer 2025 Second 6 Week Session, Spring 2025, Summer 2024 Second 6 Week Session

Determination of individual and corporation tax liability; influence of federal taxation on economic activity; tax considerations in business and investment decisions.

Rules & Requirements

Prerequisites: 102A (120AA recommended)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 122 Financial Information Analysis 4 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Summer 2025 Second 6 Week Session
This course is designed to: 1) develop basic skills in financial statement analysis; 2) teach students to identify the relevant financial data used in a variety of decision contexts, such as equity valuation, forecasting firm-level economic variables, distress prediction and credit analysis; 3) help students appreciate the factors that influence the outcome of the financial reporting process, such as the incentives of reporting parties, regulatory rules, and a firm's competitive environment.

Rules & Requirements

Prerequisites: 120AA

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 123 Operating and Financial Reporting Issues in the Financial Services Industry 3 Units

Terms offered: Fall 2023, Fall 2022, Fall 2021
This course examines how accounting in the financial services industry – banking, insurance, investment industry, and real estate – actually operates. Students learn about underwriting and pricing in each sector, investment processes and controls, incentive-based profit sharing, risk management, and the factors that contribute to profitability. Students learn what financial statements reveal about estimates companies make regarding liabilities and, more generally, what they reveal about how companies deal with uncertainty associated with predicting and measuring financial results. Students examine the controversy over employing Fair Value Accounting across sectors and learn about other sector-specific accounting requirements.

Rules & Requirements

Prerequisites: Students are encouraged to complete UGBA 102A or to possess a basic understanding about how financial statements are prepared

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 125 Ethics in Accounting 3 Units

Terms offered: Fall 2024, Fall 2023, Fall 2022
This course focuses on ethics related to the accounting for and reporting of financial statements and related financial information, and touches on the ethics of tax preparers. It is taught within the context of the American Institute of Certified Public Accountants (AICPA), as well as broader ethical concepts. This course fulfills the accounting ethics education requirement of the California Board of Accountancy, needed for a California CPA license. The course covers (i) theories and rules and (ii) the application of these theories and rules to case studies drawn from real life. Students are taught not only to identify the risks of fraud, but also how an organization’s culture and structure might be altered to reduce the risks.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 126 Auditing 4 Units

Terms offered: Summer 2025 First 6 Week Session, Fall 2024, Summer 2024 First 6 Week Session
Concepts and problems in the field of professional verification of financial and related information, including ethical, legal and other professional issues, historical developments, and current concerns.

Rules & Requirements

Prerequisites: 120AA (120AB and 120B recommended)

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1.5 hours of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 127 Special Topics in Accounting 1 - 4 Units

Terms offered: Fall 2024, Spring 2023, Spring 2022
A variety of topics in accounting with emphasis on current problems and research.

Rules & Requirements

Prerequisites: At the discretion of the instructor

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture and 0-1 hours of discussion per week

Summer: 6 weeks - 2.5-10 hours of lecture and 0-2.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 128 Strategic Cost Management 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
Managerial accounting is a company's internal language and is used for decision-making, production management, product design and pricing, performance evaluation and motivation of employees. The objective of the course is to develop the skills and analytical ability of effectively and efficiently use managerial accounting information in order to help a company achieve its strategic and financial goals.

Rules & Requirements

Prerequisites: 102B

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 131 Corporate Finance and Financial Statement Analysis 3 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Spring 2025
This course will cover the principles and practice of business finance. It will focus on project evaluation, capital structure, and corporate governance. Firms' policies toward debt, equity, and dividends are explored. The incentives and conflicts facing managers and owners are also discussed.

Rules & Requirements

Prerequisites: 103

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 134

UGBA 131A Corporate Strategy and Valuation 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
The course is designed to cover advanced corporate finance issues. Its purpose is two-fold. First, it will help students develop a tool-box, both conceptual and quantitative, to address real-world corporate financial issues that they will likely use immediately in any finance-related career. Second, the course is designed to give the “the big picture,” i.e., sharpen understanding of how corporate financial strategy helps increase a firm’s value in a dynamic environment. The course examines qualitative factors that help determine financial strategy, including the costs of financial distress and the value of financial flexibility, as well as quantitative techniques, such as option pricing, that will be helpful in various analyses.

Rules & Requirements

Prerequisites: Undergraduate Business Administration 103

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 132 Financial Institutions and Markets 3 Units

Terms offered: Summer 2020 First 6 Week Session, Summer 2019 First 6 Week Session, Summer 2018 First 6 Week Session
Organization, behavior, and management of financial institutions. Markets for financial assets and the structure of yields, influence of Federal Reserve System and monetary policy on financial assets and institutions.

Rules & Requirements

Prerequisites: 101A-101B, and 103

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 8 hours of lecture and 2.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 132

UGBA 133 Investments 3 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Fall 2024
Sources of and demand for investment capital, operations of security markets, determination of investment policy, and procedures for analysis of securities.

Rules & Requirements

Prerequisites: 103

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 134 Introduction to Financial Engineering 3 Units

Terms offered: Spring 2019
This course provides students with an introduction to the application of mathematics and statistics in the field of finance. It consists of three integrated modules: 1) an introduction to the quantitative foundations of finance, using calculus, linear algebra, statistics and probability; 2) extension into financial theory as it relates to asset pricing, fixed income, derivatives, structured finance and risk management; and 3) application and implementation of these foundational tools and theory through software like Excel to build basic quantitative financial models (touching on programming). The goal is to use financial models that can guide business and financial decisions.

Rules & Requirements

Prerequisites: UGBA 103

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 135 Personal Financial Management 2 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
Survey of major life financial decisions (e.g., career choice, consumption versus saving, investments, mortgages, insurance) and how decision-making biases (e.g., overconfidence, present bias, limited attention) can lead to suboptimal choice. The course draws on research from economics, psychology, and sociology.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Odean, Selinger

UGBA 136F Behavioral Finance 3 Units

Terms offered: Summer 2025 Second 6 Week Session, Summer 2024 Second 6 Week Session, Summer 2023 Second 6 Week Session
This course explores why markets are sometimes inefficient. We consider the role that investors' heuristics and biases play in generating mispricing in financial markets. We also explore how various trading frictions limit the ability of arbitrageurs to reduce mispricing. Finally, we look at the influence of market inefficiencies on corporate decisions.
Rules & Requirements

Prerequisites: 103

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 137 Special Topics in Finance 1 - 4 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Spring 2025
A variety of topics in finance with emphasis on current problems and research.
Rules & Requirements

Prerequisites: 103

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer: 6 weeks - 2.5-10 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 139

UGBA 141 Production and Operations Management 2 - 3 Units

Terms offered: Fall 2024, Fall 2022, Spring 2022
A survey of the concepts and methodologies for management control of production and operations systems. Topics include inventory control, material requirements planning for multistage production systems, aggregate planning, scheduling, and production distribution.
Rules & Requirements

Prerequisites: 104 or equivalent, or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 2-3 hours of lecture and 0-1 hours of discussion per week

Summer: 6 weeks - 5-7.5 hours of lecture and 0-2.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 142

UGBA 142 Advanced Business Analytics 3 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Spring 2024
Successful business analysts, managers, and executives are increasingly required to make data-driven decisions to run their businesses, rather than rely on experience and intuition alone. This course teaches the latest data analytic methods and decision methods now used by leading-edge business practitioners, going deep to understand their technical inner workings and going broad to realize their practical business applications. Topics include: data analysis/business decision methodology; data analytic methods, including machine learning and other approaches; introduction to R software for data analysis; real-world/real-data business practicum across a variety of industries.
Rules & Requirements

Prerequisites: Undergraduate Business Administration 104, Data Science C100, or equivalent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 143 Game Theory and Business Decisions 3 Units

Terms offered: Fall 2014, Fall 2013, Spring 2010
This course provides an introduction to game theory and decision analysis. Game theory is concerned with strategic interactions among players (multi-player games), and decision analysis is concerned with making choices under uncertainty (single-player games). Emphasis is placed on applications.

Rules & Requirements

Prerequisites: Mathematics 1B or 16B, Statistics 21, or equivalent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 146 Project Management 2 Units

Terms offered: Summer 2025 First 6 Week Session, Summer 2024 First 6 Week Session, Summer 2023 First 6 Week Session
The primary objective of this course is to develop the critical skills and knowledge needed to successfully pitch and lead projects, and to deliver those projects on time and within budget. The course delves into formal planning and scheduling techniques including: project definition, project selection, Work Breakdown Structure (WBS), Resource Estimation, Critical Path Method (CPM), Pert, Gantt Charts, Resource Constrained Scheduling, Project Monitoring and Project Closing.

Hours & Format

Summer: 6 weeks - 5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 147 Special Topics in Operations and Information Technology Management 1 - 4 Units

Terms offered: Summer 2023 First 6 Week Session, Summer 2022 First 6 Week Session, Spring 2022
A variety of topics in manufacturing and information technology with emphasis on current problems and research.

Rules & Requirements

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer: 6 weeks - 2.5-10 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 150 Leading High Impact Teams 3 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
This course helps students hone and develop the leadership skills needed to lead dynamic, complex, global teams. Globalization, rapid technological change, and a shift towards an innovation-based economy have resulted in more dynamic, distributed, cross-functional, as well as demographically and culturally diverse teams. Students will learn to create team developmental plans and accountability, coach teams through challenges, encourage teams to recognize and avoid bias and misattributions, and lead from a distance and across boundaries.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

UGBA 151 Management of Human Resources 3 Units

Terms offered: Spring 2022, Spring 2021, Spring 2020
The designs of systems of rewards, assessment, and manpower development. The interaction of selection, placement, training, personnel evaluation, and career ladders within an on-going organization. Role of the staff manager. Introduction of change. Implications of behavioral research for management problems and policies.

Rules & Requirements

Prerequisites: 105

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 151

UGBA 151A People Analytics 2 Units

Terms offered: Prior to 2007
This course focuses on measuring and analyzing the costs and benefits of human capital investments by providing students with the ability to develop, analyze and use information to assess and measure employee and organizational performance. The course will show participants how to develop and make critical recommendations on such information to senior management, as well as helping to increase their presence and credibility with key decision makers. On successful completion, students will have the skills necessary to formulate both qualitative and quantitative recommendations for key management decisions affecting employees.

Hours & Format

Fall and/or spring: 8 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 152 Negotiation and Conflict Resolution 3 Units

Terms offered: Fall 2025, Summer 2025 First 6 Week Session, Summer 2025 Second 6 Week Session
The purpose of this course is to understand the theory and processes of negotiation as practiced in a variety of settings. It is designed to be relevant to the broad spectrum of negotiation problems faced by managers and professionals. By focusing on the behavior of individuals, groups, and organizations in the context of competitive situations, the course will allow students the opportunity to develop negotiation skills experientially in useful analytical frameworks (e.g.- simulations, cases).

Rules & Requirements

Prerequisites: 105

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 152

UGBA 154 Power and Politics in Organizations 3 Units

Terms offered: Summer 2025 Second 6 Week Session, Summer 2024 Second 6 Week Session, Fall 2023
This course will provide students with a sense of "political intelligence." After taking this course, students will be able to: (1) diagnose the true distribution of power in organizations, (2) identify strategies for building sources of power, (3) develop techniques for influencing others, (4) understand the role of power in building cooperation and leading change in organizations, and (5) make sense of others' attempts to influence them. These skills are essential for effective and satisfying career building.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 155 Leadership 3 Units

Terms offered: Summer 2023 First 6 Week Session, Summer 2022 First 6 Week Session, Summer 2021 First 6 Week Session
The purpose of this course is for the students to develop understanding of the theory and practice of leadership in various organizational settings. It is designed to allow students the opportunity to develop leadership skills through experiential exercises, behavioral and self-assessments, case studies, class discussions, and lectures.

Rules & Requirements

Credit Restrictions: Students will receive no credit for UGBA 155 after completing UGBA W155. A deficient grade in UGBA 155 may be removed by taking UGBA W155.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 155N The Nature of Leadership 6 Units

Terms offered: Not yet offered
In today's fast-changing world, leadership requires adaptability, creativity, and resilience. "The Nature of Leadership" immerses students in the intersection of leadership, nature, and art. This experiential course explores emotional intelligence, systems thinking, and innovation inspired by the natural world. Through virtual sessions and in-country experiences across rural Spain, students engage in hands-on art practice, creative workshops, and community interactions. Site visits explore how rural communities have rebuilt economies through creativity, art, and sustainability. The course culminates in an artistic leadership project, preparing students to lead with empathy and a connection to the environment.

Hours & Format

Summer: 6 weeks - 18 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA C155 Leadership: Purpose, Authority, and Empowerment 3 Units

Terms offered: Summer 2023 10 Week Session, Summer 2022 10 Week Session, Summer 2021 10 Week Session
The purpose of this course is for the students to develop understanding of the theory and practice of leadership in various organizational settings. It is designed to allow students the opportunity to develop leadership skills through experiential exercises, behavioral and self-assessments, case studies, class discussions, and lectures.

Rules & Requirements

Credit Restrictions: Students will receive no credit for UGBA C155 after completing UGBA W155. A deficient grade in UGBA C155 may be removed by taking UGBA W155.

Hours & Format

Summer: 10 weeks - 4.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Also listed as: UGIS C151

UGBA 156 Berkeley Changemaker: Living with Agency 2 Units

Terms offered: Spring 2025, Spring 2024
What does it mean to “live with agency”? This course emphasizes the Berkeley Changemaker pillars of critical thinking, effective communication, and productive collaboration. You will combine critical examination of evidence-based, multi-disciplinary research and theories with personal self-reflection. These are interwoven with implementable strategies, directly applicable to the business context, to help you develop a sharper sense of who you want to be along with tools to make that happen. Frequent guest speakers, simulations, and discussions allow you to learn from others as you expand your network. L&S/UGBA C12/ C196C is not a prerequisite but is highly recommended since this course complements and builds on that class.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

UGBA 157 Special Topics in the Management of Organizations 1 - 4 Units

Terms offered: Spring 2025, Spring 2024, Fall 2023
A variety of topics in organizational behavior and industrial relations with emphasis on current problems and research.

Rules & Requirements

Prerequisites: 105

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer: 6 weeks - 2.5-10 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 159

UGBA 159 Becoming a Changemaker 2 Units

Terms offered: Fall 2025, Spring 2025, Spring 2024
This course inspires, trains and equips participants to convert raw energy and enthusiasm for creating a better world into real leadership skills and mindsets which will empower you to create positive change at an individual, organizational and societal level. Anchored in change leadership and bringing together the fields of entrepreneurship, innovation, leadership & social impact, the course is focused on moving from ideas to action; gaining inspiration from diverse changemakers across roles and sectors; learning how to navigate, shape and lead change to thrive amidst uncertainty; and helping you become the kind of leader our companies, our communities and our world need right now.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 160 Customer Insights 3 Units

Terms offered: Fall 2025, Fall 2024, Spring 2024
Consumer behavior is the study of how consumers process information, form attitudes and judgments, and make decisions. Its study is critical to understand how consumers think and behave, which is critical for a company wishing to develop a customer focus. Given how different people are, it is amazing how similarly their minds work. Consumer psychology is the systematic study of how consumers perceive information, how they encode it in memory, integrate it with other sources of information, retrieve it from memory, and utilize it to make decisions. It is one of the building blocks of the study of marketing and provides the student with a set of tools with diverse applications.

Rules & Requirements

Prerequisites: 106

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 161 Market Research: Tools and Techniques for Data Collection and Analysis 3 Units

Terms offered: Spring 2020, Spring 2019, Spring 2017
Information technology has allowed firms to gather and process large quantities of information about consumers' choices and reactions to marketing campaigns. However, few firms have the expertise to intelligently act on such information. This course addresses this shortcoming by teaching students how to use customer information to better market to consumers. In addition, the course addresses how information technology affects marketing strategy.

Rules & Requirements

Prerequisites: 106

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 162 Brand Management and Strategy 3 Units

Terms offered: Summer 2024 Second 6 Week Session, Spring 2022, Fall 2020
This course is an introduction to product management in marketing consumer and industrial goods and services. The course will cover analysis of market information, development of product strategy, programming strategy, and implementation.
Rules & Requirements

Prerequisites: 106

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 162

UGBA 162A Product Branding and Branded Entertainment 2 Units

Terms offered: Fall 2022, Fall 2021, Fall 2020
As consumers demand information and products tailored specifically to their individual needs, brands strive to create alternative advertising methods to build lasting relationships and retain “top of mind” status. Smart consumers, especially those in niche markets, have dismissed traditional avenues of sponsorship and product placement. Course explores how and why brand executives across multiple industries are leveraging entertainment to connect with niche markets. It educates students about how marketers develop creative and entertaining ways to connect with multi-hyphenate customers. Course culminates in a Creative Pitch, based on a case study, and a Client Presentation where students present marketing campaigns to industry executives.
Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Summer: 6 weeks - 5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 164 Marketing Strategy 3 Units

Terms offered: Spring 2020, Fall 2019, Spring 2019
This course specifically addresses how to deal with competition. Additionally, marketing managers usually have to make decisions with incomplete or unreliable information. In “Marketing Strategy” students learn how firms develop plans that can be updated in light of changing circumstances. The course covers the following topics: Market size estimation; Competitor identification and analysis; Internal analysis; Alternative business models; Risk identification, assessment and management using scenario planning; Handling unknown futures using sensitivity analysis; Price setting dynamics; Competitive tactics. The course utilizes a combination of lectures and cases. There are group presentations (self-selected teams) and some group projects.
Rules & Requirements

Prerequisites: 106

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 165 Advertising Strategy 3 Units

Terms offered: Summer 2022 First 6 Week Session, Summer 2021 First 6 Week Session, Summer 2020 First 6 Week Session
Basic concepts and functions of advertising in the economy; consumer motivation; problems in utilizing advertising and measuring its effectiveness.
Rules & Requirements

Prerequisites: 106

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 165

UGBA 167 Special Topics in Marketing 1 - 4 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
A variety of topics in marketing with emphasis on current problems and research.

Rules & Requirements

Prerequisites: 106

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer:
6 weeks - 2.5-10 hours of lecture per week
8 weeks - 4-6 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 169

UGBA 168B International Marketing 3 Units

Terms offered: Fall 2025, Spring 2025, Spring 2015
Provides frameworks, knowledge, and sensitivities to formulate and implement marketing strategies for competing in the international arena. Regions and countries covered include the Americas, Europe, Japan, China, India, Russia, Africa, and Asia-Pacific. Issues covered include global versus local advertising, international pricing strategies, selecting and managing strategic international alliances and distribution channels, managing international brands and product lines through product life cycle, international retailing, and international marketing organization and control.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 8 weeks - 6 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 169 Pricing 3 Units

Terms offered: Fall 2024, Summer 2024 Second 6 Week Session, Spring 2024
This three-module course aims to equip students with proven concepts, techniques, and frameworks for assessing and formulating pricing strategies. The first module develops the economics and behavorial foundations of pricing. The second module discusses several innovative pricing concepts including price customization, nonlinear pricing, price matching, and product line pricing. The third module analyzes the strengths and weaknesses of several Internet-based, buyer-determined pricing models.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 171 Tech and the City: How to Get Urban Innovation Right 3 Units

Terms offered: Spring 2024, Spring 2022
This course critically examines how new technologies and business models impact cities, and identifies the approaches that produce not only the best business outcomes, but also the most equitable and sustainable outcomes. To begin, we explore what makes cities such compelling laboratories for technology innovation, learn from past attempts at “smart city” interventions, and discuss how technologists can identify more effective solutions to today’s urban challenges. We’ll then hear from a variety of cutting edge practitioners, including venture investors, startup founders, government officials, tech journalists and community organizers about the unique opportunities and challenges of building an urban tech startup today.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA C172 History of American Business 3 Units

Terms offered: Spring 2022, Spring 2021, Spring 2019
This course will examine selected aspects of the history of American business. Included will be discussions of the evolution of the large corporation, the development of modern managerial techniques, and the changing relationship of business, government, and labor.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Rosen

Formerly known as: American Studies C172, Business Administration C172

Also listed as: AMERSTD C172

UGBA 173 Competitive Strategy 2 - 3 Units

Terms offered: Fall 2025, Summer 2025, Fall 2024
This course takes the perspective of the executive responsible for developing a firm's strategy, and focuses on forms of competitive advantage at the firm level. Topics include industry and competitive analysis; business scope (horizontal and vertical scope); make vs buy decision-making and related tradeoffs; network effects and complementors; disruption and response; non-market factors such as regulatory barriers to entry; and risks to sustaining returns. This course will build on concepts covered in various UGBA Core classes.

Rules & Requirements

Prerequisites: 101A or equivalent

Hours & Format

Fall and/or spring: 15 weeks - 2-2 hours of lecture per week

Summer:
3 weeks - 10-15 hours of lecture per week
6 weeks - 5-7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Metzler

Formerly known as: Undergrad. Business Administration 115

UGBA 174 Leading Strategy Implementation 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
Class format consists of lectures, experiential exercises, student presentations, and case discussions. This course will cover the concepts and techniques required for successful implementation of business strategies with a particular focus on the role of effective leadership in leading strategic change.

Rules & Requirements

Credit Restrictions: Students will receive no credit for UGBA 174 after completing BUS ADM 190.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 10 weeks - 4.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Formerly known as: Undergrad. Business Administration 119

UGBA 175 Legal Aspects of Management 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
An analysis of the law and the legal process, emphasizing the nature and functions of law within the U.S. federal system, followed by a discussion of the legal problems pertaining to contracts and related topics, business association, and the impact of law on economic enterprise.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 175

UGBA 176 Innovations in Communications and Public Relations 2 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
This course introduces students to public relations and how it is used by companies, non-profits and individuals to build and support their brands through innovative communication techniques. Students will hear from and have direct access to entrepreneurs and established executives who share insights on how they've used creative public relations campaigns and communications skills to create attention and value for their brand or avoid it in a crisis. They also learn to work in teams crafting effective media responses for an existing company needing real help now (not a case study). The semester ends with each student applying this technique to create their own personal brand that they can refine as they prepare to move into the workforce.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Summer: 6 weeks - 5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 177 Special Topics in Business and Public Policy 1 - 4 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
A variety of topics in business and public policy with emphasis on current problems and research.

Rules & Requirements

Prerequisites: 107

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer: 6 weeks - 2.5-10 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 179

UGBA 178 Introduction to International Business 3 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Fall 2024
A survey involving environmental, economic, political, and social constraints on doing business abroad; effects of overseas business investments on domestic and foreign economies; foreign market analysis and operational strategy of a firm; management problems and development potential of international operations.

Rules & Requirements

Prerequisites: Undergraduate Business Administration 101A-101B or equivalents

Credit Restrictions: Students will receive no credit for Undergraduate Business Administration 178 after completing Business Administration 188. A deficient grade in Business Administration 188 may be removed by taking Undergraduate Business Administration 178.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 179 International Consulting for Small and Medium-Sized Enterprises 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2022
By exploring the intersection of global business, entrepreneurship, and consulting, this course provides an understanding of how decision-makers in small and medium sized enterprises (SMEs) can develop the frameworks necessary for making decisions about how to venture across borders in pursuit of economic opportunities in today's hypercompetitive global business environment. In addition to the technical analysis of cases, there is a strong emphasis on how to create a new service company, market and sell to potential clients, manage client relationships, and leverage financial and human resources in a service setting.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 179G GMP Capstone: International Team Project 3 Units

Terms offered: Prior to 2007
This course is required for all juniors in the Global Management Program at the Haas School of Business and limited to those students as well. This is an experiential learning course where students will work on a live project with a company, covering both the revenue and cost sides of the business model. The course will provide students insider access to company executives and information while also giving them the opportunity to contribute meaningfully to the company's bottom-line performance. In the process, students will acquire skills and knowledge across the following three key categories: Cross-Cultural Competence, International Sales & Marketing, International Finance & Supply Chain Management.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 180 Introduction to Real Estate and Urban Land Economics 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
The nature of real property; market analysis; construction cycles; mortgage lending; equity investment; metropolitan growth; urban land use; real property valuation; public policies.

Rules & Requirements

Prerequisites: Economics 1, Mathematics 16A or 1A, or equivalents

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 6 weeks - 7.5 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 180

UGBA 183 Introduction to Real Estate Finance 3 Units

Terms offered: Spring 2020, Spring 2019, Spring 2018
Real estate debt and equity financing; mortgage market structure; effects of credit on demand; equity investment criteria; public policies in real estate finance and urban development.

Rules & Requirements

Prerequisites: 180

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 183

UGBA 184 Urban and Real Estate Economics 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2016
This course examines how market forces influence the development of cities and the development and pricing of real estate assets. Topics include city formation; city size; land rent and land use; the operation of residential, commerical and industrial property markets; and the impacts of government policies, including the provision of public services, the imposition property taxes and fees, transportation pricing and investment, and land use regulations.

Rules & Requirements

Prerequisites: A background in microeconomics and basic calculus is preferable. Please contact the instructor if you are unsure about your preparation for this course

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 187 Special Topics in Real Estate Economics and Finance 1 - 4 Units

Terms offered: Fall 2010, Fall 2009
A variety of topics in real estate economics and finance with emphasis on current problems and research.
Rules & Requirements

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer: 6 weeks - 2.5-10 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 190C Collaborative Innovation 4 Units

Terms offered: Spring 2022, Spring 2020
This is a project-based course in collaborative innovation where students experience group creativity and team-based design by using techniques from across the disciplines of business, theater, design, and art practice. Students will leverage problem framing and solving techniques derived from critical thinking, systems thinking, and creative problem solving (popularly known today as design thinking). The course is grounded in a brief weekly lecture that sets out the theoretical, historical, and cultural contexts for particular innovation practices, but the majority of the class involves hands-on studio-based learning guided by an interdisciplinary team of teachers leading small group collaborative projects.
Rules & Requirements

Credit Restrictions: Students will receive no credit for UGBA 190C after completing ART 100, or THEATER 100. A deficient grade in UGBA 190C may be removed by taking ART 100, or THEATER 100.

Hours & Format

Fall and/or spring: 15 weeks - 6 hours of studio per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructor: Beckman

UGBA 190D Innovation and Design Thinking in Business 2 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
The goal of this course is to equip students with innovation skills and practices. This is a learn-by-doing lab. Students learn research methods, ethnography, analysis and synthesis, reflective thinking, scenario creation, ideation processes, rapid prototyping cycles and designing experiments, iterative design and how to tell the story of “Never Before Seen” ideas. Class time is spent using hands-on innovation and human-centered design practices. Teams present work for critique and iterative development. The course features short lectures, guest talks, campus-based fieldwork, site visits, research and readings. Projects will be launched in the sessions and each team will be coached and mentored.
Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 190S Strategy for the Information Technology Firm 2 - 3 Units

Terms offered: Prior to 2007
This course is a strategy and general management course for students interested in pursuing careers in the global information technology industry. Students are taught to view the IT industry through the eyes of the general manager/CEO (whether at a start-up or an industry giant). They learn how to evaluate strategic options and their consequences, how to understand the perspectives of various industry players, and how to anticipate how they are likely to behave under various circumstances. These include the changing economics of production, the role network effects and standards have on adoption of new products and services, the tradeoffs among potential pricing strategies, and the regulatory and public policy context.
Hours & Format

Fall and/or spring: 15 weeks - 2-3 hours of lecture per week

Summer: 8 weeks - 4-6 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 190T Special Topics in Innovation and Design 1 - 4 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
Advanced study in the fields of innovation and design that will address current and emerging issues. Topics will vary with each offering and will be announced at the beginning of each term.

Rules & Requirements

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer:
6 weeks - 2.5-10 hours of lecture per week
8 weeks - 2-7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 191C Communication for Leaders 2 Units

Terms offered: Fall 2016, Summer 2016 10 Week Session, Summer 2016 Second 6 Week Session
This course is a workshop in the fundamentals of public speaking skills in today's business environment. Each student will give speeches, coach, and debate each other, and take part in a variety of listening and other communication exercises. The course focuses on authenticity, persuasion, and advocacy.

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of lecture and 2 hours of discussion per week

Summer:
6 weeks - 2.5 hours of lecture and 5 hours of discussion per week
8 weeks - 1.5 hours of lecture and 3.5 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

UGBA 191I Improvisational Leadership 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
This class explores the broad principles of improvisation, a performing art form that has developed pedagogical methods to enhance individual spontaneity, listening and awareness, expressive skills, risk-taking, and one’s ability to make authentic social and emotional connections. The ultimate aim of the course is to help students develop an innovative and improvisational leadership mindset, sharpening in-the-moment decision making and the ability to quickly recognize and act upon opportunities when presented. In practical terms, this course strives to enhance students’ business communication skills and increase both interpersonal intuition and confidence.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 191L Leadership Communication 1 - 3 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
Leadership Communication is a workshop in the fundamentals of public speaking in today's business environment. Through prepared and impromptu speeches aimed at moving others to action, peer coaching, and lectures, students will sharpen their authentic and persuasive communication skills, develop critical listening skills, improve abilities to give, receive, and apply feedback, and gain confidence as public speakers.

Hours & Format

Fall and/or spring: 15 weeks - 1-3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: The grading option will be decided by the instructor when the class is offered. Alternative to final exam.

UGBA 191P Leadership and Personal Development 3 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
This course is highly interactive and challenges you to explore questions central to your own leadership journey. The ultimate aim of the class is to help you develop a lifelong leadership development practice, where continuous personal growth is valued and actively pursued.
Hours & Format

Fall and/or spring: 15 weeks - 1.5 hours of lecture and 1.5 hours of laboratory per week

Summer: 6 weeks - 4 hours of lecture and 4 hours of laboratory per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 192A Leading Nonprofit and Social Enterprises 3 Units

Terms offered: Fall 2025, Fall 2023, Spring 2022
This course prepares students conceptually and practically to found, lead, and manage organizations in the nonprofit sector. The course focuses on mission and theory of change (strategy), role of the board in governance, managing and marketing to multiple constituencies, role of advocacy in meeting mission, leadership styles and managing organizational culture, resource development (philanthropy), nonprofit financial management, managing for impact, HR management (volunteering), and cross-sector alliances.
Rules & Requirements

Prerequisites: 101A or equivalent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Formerly known as: Business Administration 115

UGBA 192AC Social Movements and Social Media 3 Units

Terms offered: Spring 2020, Spring 2019, Fall 2017
This course provides a survey of innovative social movements and their complex relationships to social media technologies. It will examine the evolution from pre-social-media to present-day mobilizing strategies and the interplay between explicitly policy- and advocacy-focused approaches and related efforts rooted in music, visual arts, popular culture and celebrities. The course will place into comparative relief the discourses of explicitly racially- or ethnically-defined movements and movements that mobilize based on other, sometimes overlapping categories of marginalization including class, immigration status, gender identity and occupational category.
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructor: David Harris

UGBA 192B Strategic Philanthropy 2 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
This course teaches students the concepts and practices of effective philanthropy. It offers students the experience of studying relevant theories and frameworks for assessing potential grant recipients and a real-world grant making experience in which they complete a series of nonprofit organizational assessments and then make actual grants totaling $10,000 to a limited number of organizations. Students learn about the evolution of the philanthropic sector from traditional entities, such as private, corporate and community foundations, to an array of new funding intermediaries, technology-driven philanthropies, open source platforms, “impact” investors, and venture philanthropy partnerships.
Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 192E Social Entrepreneurship 2 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023

This course is designed to provide broad exposure to the theories and activities of social entrepreneurship. The inquiry is grounded in real-world examples that illustrate the topics and stimulate thinking, discussion, and learning. Working in groups, students develop a business plan or pitch deck for a social enterprise that addresses an issue that is of interest/concern to the student team. Students with preexisting social enterprise ideas or plans that they would like to further develop and refine are welcomed and encouraged to use this class project as an opportunity to do so.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 192F Edible Education 3 Units

Terms offered: Prior to 2007

This course is a lecture series that explores the food system and its critical role in our culture, well-being and survival. Students will develop food-systems intelligence—a personal understanding of how the diverse facets of the food system relate to one another, especially one's own role as a participant in the food system and how individual and collective choices, actions, policies and public and private interests affect it. The course explores personal ethics, complex systems, entrepreneurial agency, and ways to develop a multi-sector perspective to food-systems change making. Students will develop plans at an individual, local, national, or global scale to improve, and possibly transform our food system.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 192G Strategic Approaches for Global Social Impact 2 Units

Terms offered: Prior to 2007

The main objective of this course is to help students become effective practitioners in global development and understand career options in the global social sector. The course aims to (i) analyze the historical, sociological and statistical underpinnings of the major issues in global development (conflict, food security, human rights, poverty, health and education), (ii) understand what various organizations can contribute to each issue (government agencies, multilateral institutions, private foundations, NGOs, and private sector companies and entrepreneurs), and (iii) design and analyze approaches to addressing these issues.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 192H Managing Human Rights in Business 2 Units

Terms offered: Spring 2023, Spring 2021

This course, one of the first of its kind offered at a business school, will prepare students for the growing field of practice at the intersection of business and human rights. Students will gain an overview of the international human rights framework and global business and human rights standards and guidelines; analyze the ways in which companies can impact human rights, and to assess the degree to which companies are and should be responsible for human rights impacts; learn to manage a company’s human rights impacts as corporate human rights managers, external consultants, or civil society advocates; and practice the communication skills necessary to successfully address human rights issues within a complex multinational corporation.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 192ID Impact Startup Disco 1 Unit

Terms offered: Spring 2025, Spring 2024, Spring 2023
This is a high-octane, single weekend course (plus one intro day) for students interested in meeting other innovators and getting hands-on experience developing a new impact startup concept. All “social and environmental” impact themes are welcome. The course is inspired by other “hackathon” and startup weekend formats. A structured roadmap helps guide students through a sprint formation and ideation process. All students will be asked to submit an idea during the week prior to the class. After a peer vote selects the top ideas, teams are organically formed during the first session. At the end of the course, each team will present their validated concept and their next steps plan to a panel of impact venture experts.

Hours & Format

Fall and/or spring: 1 weeks - 15 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 192L Applied Impact Evaluation 2 Units

Terms offered: Prior to 2007
This course covers the methods and applications of impact evaluations, which is the science of measuring the causal impact of a program or policy on outcomes of interest. At its essence, impact evaluation is about generating evidence on which policies work, and which don’t. This subject matter should appeal to three main audiences: (1) those in decision-making positions, such as policy makers and business leaders, and need to consume the information generated from impact evaluations to make informed evidence-based decisions, (2) project managers, development practitioners and business managers who commission impact evaluations and (3) researchers who actually design and implement impact evaluations.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 192MC Management Consulting Skills for Social Impact 2 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
This course provides a basic understanding of what consultants do and how they do it, and how consulting skills can be applied to thorny problems of social impact. Students will: 1) gain a broad understanding of the management consulting industry, the various consulting models, and how consultants can generate value for their clients in the social sector; 2) learn and practice structured approaches to problem solving used by leading management consultancies; and 3) understand other skills required in management consulting for social impact – such as communicating persuasively and managing projects and client relationships – as well as some of the ethical issues that consultants often face working in the social sector.

Hours & Format

Fall and/or spring:
12 weeks - 2.5 hours of lecture per week
15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternate method of final assessment during regularly scheduled final exam group (e.g., presentation, final project, etc.).

UGBA 192N Topics in Social Sector Leadership 1 - 5 Units

Terms offered: Spring 2022, Fall 2019, Spring 2019
Advanced study in the field of social sector leadership that will address current and emerging issues. Topics will vary with each offering and will be announced at the beginning of each term.

Rules & Requirements

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-5 hours of lecture per week

Summer: 6 weeks - 2.5-12.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 192P Sustainable Business Consulting Projects 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
Discuss the field of strategic corporate social responsibility (CSR) through a series of lectures, guest speakers, and projects. The course will examine best practices used by companies to engage in socially responsible business practices. It will provide students with a flavor of the complex dilemmas one can face in business in trying to do both "good for society" and "well for shareholders." It looks at CSR from a corporation perspective, and how this supports core business objectives, core competencies, and bottom-line profits.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

UGBA 192PF Plant Futures: Introduction to Plant-Centric Food Systems 3 Units

Terms offered: Spring 2025
Available to students across all UCs, Plant Futures: Introduction to Plant-Centric Food Systems fosters interdisciplinary connection while providing a systems-view exploration of both the challenges and emergent solutions and opportunities within our current food system. Through a mix of synchronous and asynchronous modular content, covering Climate & Environment, Health & Nutrition, Animal Welfare, Social Impacts, Innovation, Policy & Law, Behavioral Change, Media, and Plant-Forward Cooking, you'll engage with esteemed experts, express your unique perspective through written assignments and guided discussions, and apply your learnings and ideas by working with your peers on innovative projects aimed at advancing plant-centric food systems.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 192S Business and Sustainability 2 Units

Terms offered: Summer 2024 First 6 Week Session, Summer 2023 First 6 Week Session, Summer 2022 First 6 Week Session
This course—a mixture of lectures, readings, business cases and corporate speakers—uses theory, frameworks, tools and business cases to teach students how to systematically evaluate and implement sustainability strategies that also maintain or maximize financial returns. Students are taught to identify opportunities to create business value from environmental and social challenges, and to evaluate the competitive implications related to sustainability initiatives. What type of long-term strategies can organizations set to simultaneously foster sustainable development strategy and sound financial practice? How should decision makers make trade-offs between these two organizational objectives? When is “sustainability” also “good business”?

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Summer: 6 weeks - 5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 192T Topics in Responsible Business 1 - 4 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Spring 2025
Advanced study in the field of corporate social responsibility that will address current and emerging issues. Topics will vary with each offering and will be announced at the beginning of each term.

Rules & Requirements

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer:
6 weeks - 2.5-10 hours of lecture per week
8 weeks - 2-8 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA C192R Business, Sustainability, and Society 3 Units

Terms offered: Summer 2025 Second 6 Week Session, Summer 2024 Second 6 Week Session, Summer 2022 8 Week Session, Summer 2021 8 Week Session

As corporations have grown in influence, concerns over their impact on people and the planet have also grown, pushing sustainability, corporate social responsibility, and the wider impact of business into the spotlight. This course focuses on business ethics, supply chains, resource constraints, labor issues, innovation, and environmental externalities, as well as the internal challenges, competitive pressures, external stakeholders, and other issues that businesses must consider while trying to act responsibly.

Hours & Format

Summer:
6 weeks - 7.5 hours of lecture per week
8 weeks - 6 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required, with common exam group.

Instructor: Rochlin

Also listed as: ENE,RES C192

UGBA 193B Energy & Civilization 4 Units

Terms offered: Fall 2024, Fall 2023, Fall 2022

Energy is one of the main drivers of civilization. Today we are at the precipice of what many hope will be a major paradigm shift in energy production and use. Two transitions are needed. On the one hand, we must find ways to extend the benefits of our existing energy system to the impoverished people living in the developing world while continuing to provide these benefits to the people of the developed world. On the other hand, we must completely overhaul the existing system to fight climate change and other forms of air and water pollution. Are these shifts truly within our reach? Can we achieve both simultaneously? If so, how? This Big Ideas course will grapple with these questions using an interdisciplinary systems approach.

Rules & Requirements

Credit Restrictions: Students will receive no credit for UGBA 193B after completing L & S 126. A deficient grade in UGBA 193B may be removed by taking L & S 126.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA 193C Practical Training 0.5 Units

Terms offered: Summer 2014 10 Week Session, Summer 2013 10 Week Session, Summer 2012 10 Week Session

A structured reflective experience on the applied aspects of Business Administration in a professional off-campus environment. The self-selected experience from a CPT employer is designed to provide students with opportunities to make connections between the theory and practice of academic study and the practical application of that study in a real world setting. This applied course is intended for students to enhance their academics through their experience with the experiential learning activity of their choice.

Rules & Requirements

Repeat rules: Course may be repeated for credit without restriction. Students may enroll in multiple sections of this course within the same semester.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of internship per week

Summer: 6 weeks - 0 hours of internship per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Alternative to final exam.

UGBA 193I Business Abroad 4 - 6 Units

Terms offered: Summer 2019 8 Week Session, Summer 2018 Second 6 Week Session, Summer 2017 Second 6 Week Session

This course includes both formal learning in lectures, experiential learning, and action research through site visits abroad. Students and instructor will visit with international companies and/or organizations to learn about the business opportunities and challenges of operating in a specific country or region. Evaluation is based on student participation, presentations, and a research paper. Country and business industry focus may vary from term to term depending upon the instructor.

Rules & Requirements

Prerequisites: To be determined by instructor depending on topic

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 4-6 hours of lecture per week

Summer: 5 weeks - 16-25 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 194 Undergraduate Colloquium on Business Topics 1 Unit

Terms offered: Spring 2025, Spring 2024, Spring 2023
This is a speakers series course designed to give students insights from practitioners into complex issues facing American business leaders. Each week a guest speaker will discuss an issue related to a particular theme, ranging from corporate governance to the social responsibilities of business. Students will be challenged to synthesize, question, and extend those insights under the guidance of the instructor.
Rules & Requirements

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of lecture per week

Summer: 6 weeks - 2.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam required.

UGBA 194S Sports Management 2 Units

Terms offered: Spring 2025
This course focuses on key issues and influencers within the sports industry, with an emphasis on college athletics. Subjects research, review and discuss topics in law, marketing, finance, and management; issues range from pending NCAA lawsuits, naming rights, conference television agreements, multi-media rights, and athletic facility financing, to coaching and player / student-athlete experiences. Students have the opportunity to engage with sports industry professionals and guest speakers on a variety of present day issues.
Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 195A Entrepreneurship 3 Units

Terms offered: Spring 2025, Spring 2024, Spring 2023
Whether you have an idea for a business right now, are interested in being an entrepreneur in the future, or want to build entrepreneurial skills to be an innovator at an established company, this course will cover the topics you need to know to succeed. The course takes students through the entire new venture process including how to: evaluate new business ideas, get customers to buy your product, validate that your business is scalable and profitable, pitch to investors/raise capital, scale and exit a business, and beyond. Through a group project, students create their own venture and learn by doing what entrepreneurs actually do. Each week students also get insights from successful entrepreneur/investor guest speakers.
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

UGBA 195B Startup and Small-Business Consulting 2 Units

Terms offered: Fall 2021
This course is designed to provide students with an understanding of the concepts and principles for consulting with startups and small businesses. Students will work in self-created teams of 3-4 and can either bid for projects provided by the instructor, or source their own project so long as it fits the course criteria. Course time will include guest lecturers and consulting skills workshops. Student teams will be expected to meet together and with the client outside of class time.
Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 195M M.E.T. Innovation and Entrepreneurship Immersion 2 Units

Terms offered: Prior to 2007
This course is an experiential capstone for seniors in the M.E.T. program. The pedagogical objective is to consolidate and build upon the learning over the four years in the program through a week-long immersion, in which the students will be visiting another leading technology cluster domestically or internationally. The purpose is to expose them to companies and approaches for pursuing innovation and entrepreneurship differently from the California Bay Area, to both integrate and expand the concepts and skills they've accumulated in their curriculum.
Hours & Format

Fall and/or spring: 8 weeks - 1 hour of lecture and 6 hours of fieldwork per week

Summer: 8 weeks - 1 hour of lecture and 6 hours of fieldwork per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Alternative to final exam.

UGBA 195P Entrepreneurship: How to Successfully start a New Business 3 Units

Terms offered: Fall 2025, Fall 2024, Fall 2023
This course explores and examines key issues facing entrepreneurs and their businesses. It is intended to provide a broad spectrum of topics across many business disciplines including accounting, finance, marketing, organizational behavior, production/quality, technology, etc. Students will acquire a keen understanding of both the theoretical and real world tools used by today's entrepreneurial business leaders in achieving success in today's global business environment.
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 195S Entrepreneurship To Address Global Poverty 3 Units

Terms offered: Spring 2013, Spring 2012, Spring 2011
This course examines whether and how entrepreneurial ventures can meaningfully address global poverty vs. more traditional approaches such as foreign aid, private philanthropy or corporate social responsibility initiatives. Combining lectures, case studies, and interviews with social entrepreneurs, it explores poverty and entrepreneurship before focusing on their intersection in various bottom-of-pyramid markets, from health, housing, and education to energy, agriculture, and finance.
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

UGBA 195T Topics in Entrepreneurship 1 - 3 Units

Terms offered: Summer 2025, Spring 2025, Spring 2024
Courses of this kind will cover issues in entrepreneurship that either appeal to a specialized interest by type of firm being started (e.g., new ventures in computer software) or in the aspect of the entrepreneurial process being considered (e.g., new venture funding). The courses typically will be designed to take advantage of the access offered by the University and the locale to knowledgeable and experienced members of the business community.
Rules & Requirements

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-3 hours of lecture per week

Summer: 3 weeks - 5-15 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

UGBA C195C Life Sciences, Business, and Entrepreneurship Capstone Course 4 Units

Terms offered: Prior to 2007
Blended lecture / Project-based course where student teams build out a business plan for a mock biotech company, demonstrating advanced knowledge in therapeutics and business development. Throughout the course student teams will work toward a final project in which they will identify and present a technology overview, disease overview and explanation of unmet need, a development plan, a commercialization plan, risk mitigation strategy, and financials. Class will include field trips, guest lectures, and a pitch competition with prize.

Rules & Requirements

Prerequisites: Students must be in their fourth and final year of the Life Sciences, Business, and Entrepreneurship Program in order to enroll in this class

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Instructors: Schaletzky, Dillin

Also listed as: MCELLBI C175

UGBA 196 Special Topics in Business Administration 1 - 4 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
Study in various fields of business administration. Topics will vary from year to year and will be announced at the beginning of each semester.

Rules & Requirements

Prerequisites: Upper division standing

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Summer:
6 weeks - 2.5-10 hours of lecture per week
10 weeks - 2-4 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Formerly known as: Business Administration 196

UGBA 196SA Business Models for Sustainability 3 Units

Terms offered: Summer 2025 First 6 Week Session, Summer 2024 First 6 Week Session, Summer 2023 First 6 Week Session
This course explores the ways in which business, social and environmental sustainability are intertwined. The course maps how business can play a definitive role in addressing the problems of sustainability, primarily with regard to climate change. The course examines a range of approaches to developing business models in the context of sustainability, the actions that business can take to improve environmental outlook, and the emergence of a sustainability-aware economy.

Hours & Format

Summer: 6 weeks - 6 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 196SB Innovation and Entrepreneurship for Sustainability 3 Units

Terms offered: Summer 2025 First 6 Week Session, Summer 2024 First 6 Week Session, Summer 2023 First 6 Week Session
This course is an optimistic take on the daunting issues of environmental and social sustainability, primarily through the lens of innovation and entrepreneurship, and maps how new business creation can play a definitive role in addressing the social and environmental problems of sustainability. In terms of balance, the course starts with a primer on the fundamentals of innovation and entrepreneurship (the first 20% of the course) before moving on to the core topic of sustainability entrepreneurship (80% of the course).

Hours & Format

Summer: 6 weeks - 6 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA 196SC Investing for Sustainability 3 Units

Terms offered: Summer 2025 First 6 Week Session, Summer 2024 First 6 Week Session, Summer 2023 Second 6 Week Session
This course examines how capital markets and the investment industry are responding to the growth in social and environmental sustainability, both as a financial risk to investment opportunities and increased public awareness in the role of financial markets and investment in social and environmental issues. The course includes 1) an introduction to capital markets including institutional investment, public finance and private capital, and 2) an examination of the rise of sustainability-related investing including environmental, social and governance investing, mission-related investment, venture capital impact investing, blended finance and shareholder activism on issues ranging from climate change to diversity, equity and inclusion.

Hours & Format

Summer: 6 weeks - 6 hours of lecture per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

UGBA C196C The Berkeley Changemaker 2 - 3 Units

Terms offered: Fall 2025, Summer 2025 Second 6 Week Session, Spring 2025, Fall 2023, Summer 2023 Second 6 Week Session, Spring 2023
Berkeley Changemaker impact occurs across many fronts: scientific, artistic, social, and entrepreneurial. This course helps students identify as a Berkeley Changemaker and learn the critical thinking, communication, and collaboration skills to become one. Combining disciplines across UC Berkeley, the course also helps launch the Berkeley Discovery arc. Students develop their own leadership styles and discover how they can create and lead diverse teams to act upon the world. Values in Berkeley's DNA like Questioning the Status Quo and going Beyond Yourself support students in leading from whatever position they occupy, preparing them to leave their mark on campus, in their communities, or beyond. More at: http://changemaker.berkeley.edu.

Rules & Requirements

Credit Restrictions: Students will receive no credit for UGBA C196C after completing UGBA C12. A deficient grade in UGBA C196C may be removed by taking UGBA C12.

Hours & Format

Fall and/or spring: 15 weeks - 2-2 hours of lecture and 0-1.5 hours of discussion per week

Summer:
6 weeks - 6-6 hours of lecture and 0-0 hours of discussion per week
8 weeks - 4-4 hours of lecture and 0-3 hours of discussion per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Formerly known as: Undergrad. Business Administration C112/Letters and Science C112

Also listed as: L & S C196C

UGBA 198 Directed Study 1 - 4 Units

Terms offered: Spring 2025, Spring 2016, Fall 2015
Organized group study on topics selected by upper division students under the sponsorship and direction of a member of the Haas School of Business faculty.

Rules & Requirements

Prerequisites: Consent of instructor

Credit Restrictions: Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog.

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Formerly known as: Business Administration 198

UGBA 199 Supervised Independent Study and Research 1 - 4 Units

Terms offered: Fall 2025, Spring 2025, Fall 2024
Enrollment restrictions apply.

Rules & Requirements

Prerequisites: Consent of instructor

Credit Restrictions: Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog.

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Summer:
6 weeks - 1-4 hours of independent study per week
8 weeks - 1-4 hours of independent study per week

Additional Details

Subject/Course Level: Undergrad. Business Administration/ Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Formerly known as: Business Administration 199