

ENTREPRENEURSHIP AND INNOVATION, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Requirements

| Requirement | Credits |
|----------------------------|---------|
| Requirements for the Minor | 18-19 |

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

| Code | Title | Credits |
|---|----------------------------|---------|
| Prescribed Courses | | |
| <i>Prescribed Courses: Require a grade of C or better</i> | | |
| ENGR 310 | Entrepreneurial Leadership | 3 |
| ENGR/IST/MGMT 425 | New Venture Creation | 3 |
| MGMT 215 | Entrepreneurial Mindset | 3 |
| Additional Courses | | |
| <i>Additional Courses: Require a grade of C or better</i> | | |
| Select 9 or more credits from one of the clusters listed below ¹ | | 9-10 |

¹ Students may not use a required course from their major in their chosen cluster. Other courses, such as technical electives, out-of-college electives, and general education courses may be able to be used to meet requirements in major as well as the ENT1 Minor. In all clusters, students may substitute up to 3 credits of research topics, internship or independent studies courses focused on relevant entrepreneurship or innovation topics in consultation with an adviser. Each cluster is structured to provide a clear course "path" so any student from any major can complete the cluster and therefore the ENT1 minor.

Bio-Tech Cluster

| Code | Title | Credits |
|--|-------------------------------------|---------|
| Required Courses | | |
| Choose one foundational course for the Bio-Tech cluster from the following list: | | 3-4 |
| BIOL 230W | Biology: Molecules and Cells | |
| BIOL 230M | Honors Biology: Molecules and Cells | |
| BMB/MICRB 251 | Molecular and Cell Biology I | |
| BMB 251H | Molecular and Cell Biology I | |
| MICRB 201 | Introductory Microbiology | |
| MICRB 201H | Introductory Microbiology | |
| Choose one of the following advanced courses for the Bio-Tech cluster: | | 3-4 |

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|---|--|---|
| BIOL 405 | Molecular Evolution | |
| BIOL 409 | Biology of Aging | |
| BIOL 412 | Ecology of Infectious Diseases | |
| BIOL 415 | Ecotoxicology | |
| BIOL 416 | Biology of Cancer | |
| BIOL 419 | Ecological and Environmental Problem Solving | |
| BIOL 419H | Ecological and Environmental Problem Solving | |
| BIOL 424 | Seeds of Change: The Uses of Plants | |
| BIOL 426 | Developmental Neurobiology | |
| BIOL 431 | Reproductive Biology | |
| BIOL 432 | Developmental Genetics | |
| BIOL 439 | Practical Bioinformatics | |
| BIOL 443 | Evo-devo: Evolution of Developmental Mechanisms | |
| BIOL 451 | Biology of RNA | |
| BIOL/ANTH 460 | Human Genetics | |
| BIOL 461 | Contemporary Issues in Science and Medicine | |
| BIOL 467 | Molecular Basis of Neurological Diseases | |
| BIOL/BBH 469 | Neurobiology | |
| BIOTC/BIOL/HORT 459 | Plant Tissue Culture and Biotechnology | |
| BIOTC/AGRO 460 | Advances and Applications of Plant Biotechnology | |
| BMB 401 | General Biochemistry | |
| BMB 442 | Laboratory in Proteins, Nucleic Acids, and Molecular Cloning | |
| BMB/MICRB 480 | Cancer Development and Progression | |
| BMB 482 | Introduction to Computational Biology | |
| BMB 484 | Functional Genomics | |
| BMB/VBSC 485 | Human Genomics and Biomedical Informatics | |
| CHEM 402 | Environment Chemistry: Atmosphere | |
| CHEM 423W | Chemical Spectroscopy | |
| CHEM 425W | Chromatography and Electrochemistry | |
| CHEM 431W | Advanced Synthetic Methodologies | |
| CHEM 459W | Advanced Experimental Physical Chemistry | |
| CHEM 476 | Biological Chemistry | |
| FRNSC 427W | Forensic Chemistry | |
| MATH 405 | Advanced Calculus for Engineers and Scientists I | |
| MATH 406 | Advanced Calculus for Engineers and Scientists II | |
| MATH 448 | Mathematics of Finance | |
| MATH 450 | Mathematical Modeling | |
| MATH 484 | Linear Programs and Related Problems | |
| MATH 486 | Mathematical Theory of Games | |
| MICRB 401 | Microbial Physiology and Structure | |
| PHYS 462 | Applications of Physics in Medicine | |
| PHYS 465 | Network analysis of biological systems | |
| PHYS 472 | Elements of Nuclear Physics and its Applications to Medical Imaging and Treatments | |
| Choose one of the following capstone courses for the Bio-Tech cluster: ¹ | | 3 |
| BIOTC/MICRB 416 | Microbial Biotechnology | |

BIOTC/BIOL/ Plant Tissue Culture and Biotechnology
HORT 459

¹ Note: if a course is taken to satisfy 400-level elective, it cannot also be used to satisfy capstone requirement.

Digital Entrepreneurship and Innovation Cluster

| Code | Title | Credits |
|-------------------------|--|---------|
| Required Courses | | |
| IST 237 | Digital Entrepreneurship | 3 |
| IST 337 | Technologies for Digital Entrepreneurs | 3 |
| IST 437 | Digital Design & Innovation ¹ | 3 |

¹ IST 237 is prerequisite for IST 437.

Entrepreneurship as Advocacy Cluster

| Code | Title | Credits |
|--|--|---------|
| Required Courses | | |
| LA 202 | Innovation and Entrepreneurship in the Liberal Arts ¹ | 3 |
| LA 424 | Liberal Arts Venture Development ¹ | 3 |
| Select 3 credits from the following: 3 | | |
| AFAM 100N | Black Freedom Struggles | |
| AFAM/SOC/ WMNST 103 | Racism and Sexism | |
| AFAM/LHR/ WMNST 136 | Race, Gender, and Employment | |
| AFAM/HIST/ WMNST 213Y | African American Women's History | |
| CAS/ENGL 137H | Rhetoric and Civic Life I | |
| CAS 175N | Persuasion and Propaganda | |
| CAS 210 | Landmark Speeches on Democracy and Dissent | |
| CAS 220 | Persuasion | |
| CAS 222N/ AYFCE 211N/ CIVCM 211N | Foundations: Civic and Community Engagement | |
| CAS 321 | Rhetoric and Law | |
| CAS 373 | The Rhetorics of War and Peace | |
| ENGL 162N | Communicating Care | |
| ENGL 228 | Introduction to Disability Studies in the Humanities | |
| ENGL 236N | Inequality: Economics, Philosophy, Literature | |
| LHR 100 | Exploring Work and Employment | |
| LHR 201 | Employment Relationship: Law and Policy | |
| PLSC 202 | American Public Policy | |
| PLSC 210N | Rights in America | |
| PLSC 291 | Introduction to Peace and Conflict Studies | |
| PSYCH 100 | Introductory Psychology | |
| SOC 1 | Introductory Sociology | |
| SOC 5 | Social Problems | |
| SOC/CRIM/ CRIMJ 12 | Criminology | |
| SOC 23 | Population and Policy Issues | |
| WMNST 100 | Introduction to Women's and Gender Studies | |

WMNST 105N Living in a Diverse World

WMNST 200 Global Feminisms

¹ LA 202 and LA 424 should be taken in sequence.

Food and Bio-innovation Cluster

| Code | Title | Credits |
|--|---|---------|
| Required Courses | | |
| Select up to 6 credits of the following 200-300 level courses in the College of Agricultural Sciences: | | 6 |
| AEE 201 | Interpersonal Skills for Tomorrow's Leaders | |
| AEE 360 | Leadership Development for Small Groups | |
| AGBM 200 | Introduction to Agricultural Business Management | |
| AGBM 302 | Food Product Marketing | |
| AGBM 308W | Strategic Decision Making in Agribusiness | |
| AGBM 338 | Agribusiness in the Global Economy | |
| ANSC 201 | Animal Science | |
| ANSC 306 | Swine Production and Management | |
| ANSC 308 | Sheep and Goat Production and Management | |
| ANSC 309 | Beef Cattle Production and Management | |
| ANSC 310 | Dairy Cattle Production and Management | |
| ANSC 311 | Poultry Production and Management | |
| ANSC 324 | Value Determination of Meat Animals | |
| ANSC 327 | Horse Production and Management | |
| ANSC 346 | Animal Enterprise Analysis | |
| ANSC 350 | Dairy Problem Solving | |
| BE/ABSM 391 | Communication Skills for BE and ABSM Students | |
| BE/ABSM 392 | Leadership and Ethics for BE and ABSM Students | |
| CED 375 | Community, Local Knowledge, and Democracy | |
| ERM 300 | Basic Principles and Calculations in Environmental Analysis | |
| FDSC 200 | Introductory Food Science | |
| FDSC 206 | Improving Food Quality | |
| FORT 250 | Forest Management Practices | |
| HORT 250 | Landscape Contracting Design/Build Principles | |
| Select at least 3 credits of the following 400 level courses in the College of Agricultural Sciences: | | 3 |
| ABSM/ERM 402 | Foundations of Sustainable Business | |
| ABSM 429 | Agricultural and Biorenewable Systems Analysis and Management | |
| AEE 460 | Foundations in Leadership Development | |
| AGBM 407 | Farm Planning and Financial Management | |
| AGBM 408 | Financial Decision Making for Agribusiness | |
| AGBM 440 | Food Product Innovation Management | |
| AGBM 445 | AgTech Entrepreneurship | |
| AGBM/HORT 455 | Retail Horticulture Business Management | |
| AGBM 460 | Managing the Food System | |
| ANSC 410 | Advanced Dairy Herd Management | |
| ANSC 429 | Advanced Beef Cattle Production | |
| ANSC 450 | Dairy Farm Management Systems | |
| BRS 437 | Bioproduct Marketing and Sales | |

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| CED 417 | Power, Conflict, and Community Decision Making |
| CED 425 | International Community and Economic Development |
| CED 430W | Principles of Community Economic Development |
| ERM 411 | Legal Aspects of Resource Management |
| ERM 412 | Resource Systems Analysis |
| ERM 413W | Case Studies in Ecosystem Management |
| FDSC 411 | Managing Food Quality |
| FDSC 430 | Unit Operations in Food Processing |
| FDSC 444 | Arguing about Food |
| FDSC 450 | Food Innovation and Product Design |
| FDSC/INTAG 460 | International Food Production |
| FOR 440 | Forest and Conservation Economics |
| HORT 410W | Issues in Landscape Contracting |
| HORT 453 | Flower Crop Production and Management |
| HORT/AGBM 455 | Retail Horticulture Business Management |
| TURF 436W | Case Studies in Turfgrass Management |

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| or BLAW 243 | Legal Environment of Business |
| or BLAW 341 | Business Law I: Introduction to Contracts, Liability Issues, and Intellectual Property |
| BA 250 | Small Business Management |
| BA 322 | Negotiation Skills for Business Professionals |
| MGMT 365 | Social Entrepreneurship |
| MGMT/ENGR/IST 426 | Invention Commercialization |
| MGMT 427 | Managing an Entrepreneurial Start-Up Company |
| MGMT 427W | Managing an Entrepreneurial Start-up |
| MGMT 451 | Business, Ethics, and Society |
| MGMT 451W | Business, Ethics, and Society |
| MGMT 453 | Creativity and Innovation |
| Select 3 credits from the following category: ¹ | 3 |
| MGMT 426 | Invention Commercialization |
| MGMT 427 | Managing an Entrepreneurial Start-Up Company |
| MGMT 427W | Managing an Entrepreneurial Start-up |
| MGMT 451 | Business, Ethics, and Society |
| MGMT 451W | Business, Ethics, and Society |
| MGMT 453 | Creativity and Innovation |

Hospitality Management Cluster

| Code | Title | Credits |
|--------------------------------------|--|---------|
| Required Courses | | |
| HM 484 | Hospitality Entrepreneurship and Innovation | 3 |
| Select 6 credits from the following: | | 6 |
| HM 382 | Franchising in the Hospitality Industry | |
| HM 407 | The Sustainable Fork: Food Systems Decisions for Away-From-Home Eating | |
| HM 435 | Hospitality Corporate Finance | |
| HM 482 | Hospitality Real Estate | |
| HM 485 | Advanced Meeting and Event Management | |
| HM 488 | Hospitality Asset Management | |

¹ Courses cannot double count in these categories.

Product innovation Cluster

| Code | Title | Credits |
|--------------------------------------|--|---------|
| Required Courses | | |
| ENGR 407 | Technology-Based Entrepreneurship | 3 |
| ENGR 411 | Entrepreneurship Business Basics | 3 |
| Select 3 credits from the following: | | 3 |
| EDSGN 367 | Design Thinking and Making | |
| EDSGN 467 | Prototyping to Launch | |
| ENGR 408 | Leadership Principles | |
| ENGR 415 | Launching Innovation: Ideas to Opportunities | |

New Media Cluster

| Code | Title | Credits |
|--------------------------------------|--|---------|
| Required Courses | | |
| COMM 271 | Principles of Journalism | 3 |
| Select 6 credits from the following: | | 6 |
| COMM 361 | Entrepreneurial Journalism | |
| COMM 362 | Podcasting | |
| COMM 384 | Telecommunications Promotion and Sales | |
| COMM 461A | Digital Magazine Production | |
| COMM 462 | Feature Writing | |
| COMM 483 | Wireless Communications Industry | |
| COMM 484 | Emerging Telecommunications Technologies | |
| COMM 492 | Internet Law and Policy | |
| COMM 493 | Entrepreneurship in the Information Age | |

Social Entrepreneurship Cluster

| Code | Title | Credits |
|---|--|---------|
| Required courses to be taken in the following order: | | |
| ENGR 451 | Social Entrepreneurship | 3 |
| EDSGN 452 | Projects in Humanitarian Engineering | 2 |
| EDSGN 453 | Design for Developing Communities | 1 |
| EDSGN 454 | Humanitarian Engineering and Social Entrepreneurship Field Experience | 0.5 |
| ENGR 455 | Humanitarian Engineering and Social Entrepreneurship Reflection and Research Dissemination | 3 |

New Ventures Cluster

| Code | Title | Credits |
|--|---|---------|
| Required Courses | | |
| Select 6-7 credits from the following category: ¹ | | 6-7 |
| BA 241 & BA 242 or BA 243 | Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business | |