

**COURSE REQUIREMENTS FOR BS-MBA WITH CERTIFICATE IN**  
**ENTREPRENEURSHIP TRACK**  
**AND**  
**PROFESSIONAL PREPARATION TRACK WITH BS + MINOR IN**  
**ENTREPRENEURSHIP**

**Course Requirements for Graduate Certificate in Entrepreneurship**

[12 semester hours to be earned by MBA-ACCEND students in the S-STEM scholarship program]

MGMT 7035 Management of Innovation  
ENTR 7005 New Venture Creation (Syllabus included in Supplemental Material)  
ENTR 7089 Capstone in Entrepreneurship (Syllabus included in Supplemental Material)  
One ENTR Elective; possibilities include, but are not limited to  
    MGMT 7012 Leadership and Organizations  
    ENTR 7025 Global Entrepreneurship  
    ENTR 7035 Management of Closely Held/Family Business  
    MKTG 7021 Design Thinking for Business

**Courses Requirements for Minor in Entrepreneurship**

[18 semester hours to be earned by S-STEM students in the Professional Preparation track]

***Prerequisites for Minor:***

ECON 1001 Intro to Microeconomics  
FIN 3080 Business Finance

***Classes for Minor:***

FIN 4008 New Venture Finance  
ENTR 5070 New Venture Creation (Syllabus parallels syllabus for ENTR 7005)  
ENTR 5089 Capstone in Entrepreneurship (Syllabus parallels syllabus for ENTR 7089)  
One ENTR Elective; possibilities include, but are not limited to:  
    BLAW 4035 Legal Aspects of Entrepreneurship  
    ENTR 4001 Intro to Innovation  
    ENTR 4010 Management of Closely Held and Family Business  
    ENTR 5001 Corporate Entrepreneurship

**Additional Coursework Required (Besides BS) for MBA with Graduate Certificate  
Entrepreneurship<sup>1</sup>**

<b>Course Name</b>	<b>Number</b>	<b>Hrs.</b>
<b><i>Foundations</i></b>		
Fdns in Management	MGMT 7000	2
Fdns in Marketing	MKTG 7000	1
Fdns in Acct	ACCT 7000	2
Fdns in Finance	FIN 7000	1
Fdns in Economics**	ECON 7000	2
<b>Total Foundations</b>		<b>8</b>
<b><i>Core</i></b>		
Leadership & Orgs	MGMT 7014	2
Decision Modeling	BANA 7012	2
Managerial Economics	ECON 7020	2
Info & Tech Mgmt	IS 7011	2
Mgmt of Operations	OM 7011	2
Marketing for Managers	MKTG 7011	2
Financial Management	FIN 7014	3
Acct for Mgr Decisions	ACCT 7012	3
Strategic Management	MGMT 7012	2
Corp Legal & Social	BA 7010	2
Global	ENTR 7025 (3 hr course, w/1 hr carryover to elective)	2
Capstone***	Various	2
<b>Total Core</b>		<b>26</b>
<b><i>Grad. Cert. ENTR</i></b>		
Entrep. New Venture Creation	ENTR 7005	3
Strategy Implementation	ENTR 7089	3
Management of Innovation	MGMT 7035	3
Elective	Various	3
<b>Total Electives</b>		<b>12</b>
<b>TOTAL SEMESTER HRS</b>		<b>46</b>

<sup>1</sup> There is not one curriculum sheets for the BS-MBA Program which applies for all students in BME, CHE and ENVE. Each student varies with regard to AP credit, undergraduate business courses, and other aspects that put them ahead in the program. Students are informed they have to complete all the requirements of the undergraduate BS program and for the MBA the curriculum requirements given below. Additionally, the courses that count for the Graduate Certificate in Entrepreneurship are indicated. The students need to work with the undergraduate Degree Academic Advisor and the S-STEM Mentor on what courses are appropriate given any advanced standing they have on undergraduate coursework. The student also needs to work with the MBA Degree Advisor on what

course to take for the MBA and Graduate Certificate in Entrepreneurship requirements (the MBA curriculum is much less constrained than engineering curriculum). A dedicated team of undergraduate Degree Academic Advisors in CEAS, who advise all dual degree BS-Master's program (also called ACCEND) students, are very familiar with the advising and know how to guide students.

Students with a business minor will be waived from the foundations courses, but will need 36 total hours to graduate (to be completed through additional elective hours).

ACCEND students are permitted to take only 50% of the MBA classes online.

All Foundations classes are offered each term in an online format.

All core classes are offered each term in an online format.

All core classes are offered term, but in differing formats: evening, online, or daytime.

Foundations classes should be taken before the core class in that discipline; core should be taken before electives in that discipline.

\* Students who have not taken an engineering stats and/or CVE 3003 will be required to take BANA 7011, Data Analysis Foundations course

\*\* Students who have taken and Engineering Econ class can waive this course.

\*\*\*Capstones should be taken towards the end of the program as it is a culminating project. Students should consult with their program advisors as several courses, e.g., ENTR 7005, ENTR 7025, and ENTR 7089 can serve as both requirements and/or electives for the Graduate Certificate in Entrepreneurship as well as meet the MBA capstone paper requirements.

Updated 2/25/15

### **Courses Requirements for BS with Minor in Entrepreneurship**

Non-Lindner College students interested in the Minor in Entrepreneurship must meet the following requirements to apply:

- Have 30 earned semester credit hours
- Have at least a 3.0 University GPA and be enrolled in a four-year degree granting program
- Complete at least 50 percent of all minor coursework in the Lindner College of Business.
- Earn a 2.0 in minor courses to be certified with the minor.

How to Apply:

File an online **Business Minor Application** form. Students will be notified by email of their acceptance into the program and the process for registration in the required Lindner classes.

#### **Foundational Courses:**

- BBA and BSIM (Bachelor of Science in Industrial Management) students will fulfill the foundational courses through the completion of their primary degrees.
- ECON-1001 Introduction to Microeconomics 3 semester hours
- FIN-3080C Business Finance 3 semester hours
- or
- ENTP-3071 Business Startup Experience 3 semester hours

#### **Required Minor Courses:**

Lindner students may not double count these courses between majors and minors.

<b>Course Number</b>	<b>Course Titles</b>	<b>12 Credit Hours</b>
FIN 4008	New Venture Finance***	3
ENTR 5070	Entrepreneurship: New Venture Creation	3
ENTR 5098	Capstone in Entrepreneurship	3
Choose from one of the following: ACCT 6076; BLAW 4035; ENTR 4001; ENTR 4010; ENTR 4060; ENTR 5001; ENTR 5093; ENTR 5099; MKTG 4029	Entrepreneurship Elective	3

\*\*\* May have a new course number and area designation in ENTR b

**BIOMEDICAL ENGINEERING (BME)**  
**S-STEM BS+MS and GSPT Changes Indicated**

<b>Fall 2014</b> CHEM 1040 Gen Chemistry I 4 CHEM 1040L Gen Chem Lab I 1 ENED 1020 Engrg Foundations 2 ENED 1090 Engineering Models I 2 ENGL 1001 English Composition 3 MATH 1061 Calculus I 4 Total SH 16	<b>Spring 2015</b> CHEM 1041 Gen Chemistry II 4 CHEM 1041L Gen Chem Lab II 1 ENED 1030 Statics & BSOM 3 ENED 1091 Engineering Models II 2 MATH 1062 Calculus II 4 PD 1011 COOP for CEAS 1 Total SH 15	<b>Summer 2015</b> <p style="text-align: center;"><b>OFF</b></p>
<b>Fall 2015</b> BoK 3 BIOL 1081 Biology 1 3 BIOL 1081L Biology I Lab 1 BME 2000C BME in the Clinic 3 ENVE 2093C Engr Apps of Diff Eqns 2 MATH 2074 Dynamical Systems 3 COOP 2011 Practice Evaluation Total SH 15	<b>Spring 2016</b> <p style="text-align: center;"><b>Cooperative Education Work Semester</b></p>	<b>Summer 2016</b> BOK 3 BME 2010 Research Methods 3 TECH ELEC 3 BME 3071C Basic Electric Circuits 4 ENVE 4051 Stats & Reliability 3 COOP 2012 Practice Evaluation Total SH 16
<b>Fall 2016</b> <p style="text-align: center;"><b>Cooperative Education Work Semester</b></p>	<b>Spring 2017</b> BOK 3 BME Focus Elective 3 TECH ELEC 3 BME 3020C Sensing & Measure. 4 ENGL 2089 Intermediate Comp. 3 COOP 3011 Practice Evaluation ENFD 3020 Undergrad Res I 2 Total SH 18	<b>Summer 2017</b> <p style="text-align: center;"><b>Cooperative Education Work Semester</b></p>
<b>Fall 2017</b> BOK 3 BME Focus Elective 3 TECH ELEC 3 BME 4020C Control & Lab. 4 PD 4001 Prof. Development 1 COOP 4011 Practice Evaluation ENFD 4020 Undergrad Res II 1 Total SH 15	<b>Spring 2018</b> <p style="text-align: center;"><b>Cooperative Education Work Semester</b></p>	<b>Summer 2018</b> ENFD 5030 Prep Grad Research 1-12 <p style="text-align: center;">OR</p> ENFD 5020 Undergrad Res III 1-12 Other Coursework 0-11 Total SH 12
<b>Fall 2018</b> SELE ELEC 3 SELE ELEC 3 BME ELEC 4 BME 5001 BME Sr. Capstone 6 COOP 4012 Practice Evaluation Total SH 16	<b>Spring 2019</b> SELE ELEC 3 TECH-PROF ELEC 3 BME 5001 BME Sr. Capstone 6 Total SH 12	

BOK = Breadth of Knowledge -- General Education Requirements

UC's College of Engineering and Applied Science BOK requirements are as follows:

Take one course from any two of the following

- FA Fine Arts
- HP Historical Perspectives
- HU Humanities
- SS Social Sciences

AND Take one course from each of the following

- DC Diversity and Culture
- SE Social and Ethical Issues

**CHEMICAL ENGINEERING (CHE)**  
**Section 1: S-STEM BS+MS and GSPT Changes Indicated**

<b>Fall 2014</b> CHEM 1040 Gen Chemistry I 4 CHEM 1040L Gen Chem Lab I 1 ENED 1020 Engrg Foundations 2 ENED 1090 Engineering Models I 2 ENGL 1001 English Composition 3 MATH 1061 Calculus I 4 Total SH 16	<b>Spring 2015</b> CHEM 1041 Gen Chemistry II 4 CHEM 1041L Gen Chem Lab II 1 ENED 1030 Statics & BSOM 3 ENED 1091 Engineering Models II 2 MATH 1062 Calculus II 4 PD 1011 COOP for CEAS 1 Total SH 15	<b>Summer 2015</b> OFF
<b>Fall 2015</b> <b>Cooperative Education Work Semester</b>	<b>Spring 2016</b> CHE 4075 Research Methods 3 CHE 2064 Matl & Energy Balance 4 CHEM 2040 Organic Chemistry.... 4 CHEM 2040L Organic Chem Lab 1 ENVE 2093C Engr Apps of Diff Eqns 2 MATH 2074 Dynamical Systems 3 COOP 2011 Practice Evaluation Total SH 15	<b>Summer 2016</b> <b>Cooperative Education Work Semester</b>
<b>Fall 2016</b> BME 3071C Basic Electric Circuits 4 CHE 3022 Transport I 4 CHEM 2041 Organic Chemistry II 4 CHEM 2041L Organic Chem Lab II 1 ENVE 4051 Stats & Reliability 3 COOP 2012 Practice Evaluation Total SH 16	<b>Spring 2017</b> <b>Cooperative Education Work Semester</b>	<b>Summer 2017</b> BoK 3 BoK 3 CHE 3023 Transport II 3 CHE 3062 Chem Engn Thermo. 4 ENGL 4092 Technical Writing 3 COOP 3011 Practice Evaluation CHE 4075 Undergrad Res I 2 Total SH 18
<b>Fall 2017</b> <b>Cooperative Education Work Semester</b>	<b>Spring 2018</b> TECH ELEC 3 CHE 4075 Undergrad Res II 1 CHE 4001 UG Seminar 4 CHE 4061 Separation Processes 3 CHE 4062 Chem React Engn 3 CHE 4071 Proc Dynam/Control 3 PD 4001 Prof. Development 1 COOP 4011 Practice Evaluation Total SH 14	<b>Summer 2018</b> ENFD 5030 Prep Grad Research 1-12 OR ENFD 5020 Undergrad Res III 1-12 Other Coursework 0-11 Total SH 12
<b>Fall 2018</b> BoK 3 CHE 4037 ChE Lab 4 CHE 5045 Proc Design I 4 CHE 5082 Ind Chem Processes 3 CHEM 3030 Instrumental Analysis 3 COOP 4012 Practice Evaluation 2 Total SH 17	<b>Spring 2019</b> BoK 3 TRACK ELEC 3 TRACK ELEC 3 CHE 5046 Proc Design II 4 CHE 4001 UG Seminar 1 CHEM 3030L Instrument Anal Lab. 2 Total SH 16	

BOK = Breadth of Knowledge -- General Education Requirements

UC's College of Engineering and Applied Science BOK requirements are as follows:

Take one course from any two of the following

FA	Fine Arts	Implementation of S-STEM
HP	Historical Perspectives	Curriculum changes from CHE faculty
HU	Humanities	
SS	Social Sciences	

AND Take one course from each of the following

DC	Diversity and Culture
SE	Social and Ethical Issues

**CHEMICAL ENGINEERING (CHE)**  
**Section 2: S-STEM BS+MS and GSPT Changes Indicated**

<b>Fall 2014</b> CHEM 1040 Gen Chemistry I 4 CHEM 1040L Gen Chem Lab I 1 ENED 1020 Engrg Foundations 2 ENED 1090 Engineering Models I 2 ENGL 1001 English Composition 3 MATH 1061 Calculus I 4 Total SH 16	<b>Spring 2015</b> CHEM 1041 Gen Chemistry II 4 CHEM 1041L Gen Chem Lab II 1 ENED 1030 Statics & BSOM 3 ENED 1091 Engineering Models II 2 MATH 1062 Calculus II 4 PD 1011 COOP for CEAS 1 Total SH 15	<b>Summer 2015</b> <p style="text-align: center;"><b>OFF</b></p>
<b>Fall 2015</b> CHE 4075 Research Methods 3 CHE 2064 Matl & Energy Balance 4 CHEM 2040 Organic Chemistry.... 4 CHEM 2040L Organic Chem Lab 1 ENVE 2093C Engr Apps of Diff Eqns 2 MATH 2074 Dynamical Systems 3 COOP 2011 Practice Evaluation Total SH 15	<b>Spring 2016</b> <b>Cooperative Education Work Semester</b>	<b>Summer 2016</b> BME 3071C Basic Electric Circuits 4 CHE 3022 Transport I 4 CHEM 2041 Organic Chemistry II 4 CHEM 2041L Organic Chem Lab II 1 ENVE 4051 Stats & Reliability 3 COOP 2012 Practice Evaluation Total SH 16
<b>Fall 2016</b> <b>Cooperative Education Work Semester</b>	<b>Spring 2017</b> BoK 3 BoK 3 CHE 3023 Transport II 3 CHE 3062 Chem Engr Thermo. 4 ENGL 4092 Technical Writing 3 COOP 3011 Practice Evaluation CHE 4075 Undergrad Res I 2 Total SH 18	<b>Summer 2017</b> <b>Cooperative Education Work Semester</b>
<b>Fall 2017</b> TECH ELEC 3 CHE 4075 Undergrad Res II 1 CHE 4001 UG Seminar 4 CHE 4061 Separation Processes 3 CHE 4062 Chem React Engr 3 CHE 4071 Proc Dynam/Control 3 PD 4001 Prof. Development 1 COOP 4011 Practice Evaluation Total SH 14	<b>Spring 2018</b> <b>Cooperative Education Work Semester</b>	<b>Summer 2018</b> ENFD 5030 Prep Grad Research 1-12 OR ENFD 5020 Undergrad Res III 1-12 Other Coursework 0-11 Total SH 12
<b>Fall 2018</b> BoK 3 CHE 4037 ChE Lab 4 CHE 5045 Proc Design I 4 CHE 5082 Ind Chem Processes 3 CHEM 3030 Instrumental Analysis 3 COOP 4012 Practice Evaluation Total SH 17	<b>Spring 2019</b> BoK 3 TRACK ELEC 3 TRACK ELEC 3 CHE 5046 Proc Design II 4 CHE 4001 UG Seminar 1 CHEM 3030L Instrument Anal Lab. 2 Total SH 16	

BOK = Breadth of Knowledge -- General Education Requirements

UC's College of Engineering and Applied Science BOK requirements are as follows:

- Take one course from any two of the following
- FA Fine Arts
  - HP Historical Perspectives
  - HU Humanities
  - SS Social Sciences
- AND Take one course from each of the following
- DC Diversity and Culture
  - SE Social and Ethical Issues

Implementation of S-STEM  
 Curriculum changes from  
 CHE faculty

**ENVIRONMENTAL ENGINEERING (ENVE)**  
**S-STEM BS+MS and GSPT Changes Indicated**

<b>Fall 2014</b> CHEM 1040 Gen Chemistry I 4 CHEM 1040L Gen Chem Lab I 1 ENED 1020 Engrg Foundations 2 ENED 1090 Engineering Models I 2 ENGL 1001 English Composition 3 MATH 1061 Calculus I 4 Total SH 16	<b>Spring 2015</b> CHEM 1041 Gen Chemistry II 4 CHEM 1041L Gen Chem Lab II 1 ENED 1030 Statics & BSOM 3 ENED 1091 Engineering Models II 2 MATH 1062 Calculus II 4 PD 1011 COOP for CEAS 1 Total SH 15	<b>Summer 2015</b> OFF
<b>Fall 2015</b> <b>CHE 4075 Research Methods 3</b> BIOL 1081 Biology 1 3 BIOL 1081L Biology I Lab 1 CHE 2064 Matl & Energy Bal 4 ENFD 2000C Grd Challen in Engrn 2 ENVE 2093C Engr Apps of Diff Eqns 2 MATH 2074 Dynamical Systems 3 COOP 2011 Practice Evaluation Total SH 18	<b>Spring 2016</b> <b>Cooperative Education Work Semester</b>	<b>Summer 2016</b> CHEM 2040 Organic Chem I 4 CHEM 2040L Organic Chem Lab I 1 <b>CHE 3022 Transport I 4</b> ENGL 4092 Technical Writing 3 ENVE 4010 Water & Waste 3 ENVE 4010L Envir & Radiolog 2 ENVE 4051 Stats & Reliability 3 COOP 2012 Practice Eval # Total SH 16
<b>Fall 2016</b> <b>Cooperative Education Work Semester</b>	<b>Spring 2017</b> CHEM 2040 Organic Chem I 4 CHEM 2040L Organic Chem Lab I 1 <b>CHE 4075 Undergrad Res I 2</b> CVE 3002C Soil Mech & Lab 4 <b>CHE 3022 Transport I 4</b> ENVE 3040 C&E System Anal 3 ENVE 4011 Air Pollution Cont 3 COOP 3011 Practice Eval # Total SH 17	<b>Summer 2017</b> <b>Cooperative Education Work Semester</b>
<b>Fall 2017</b> CHE 4071 Proc Dynam & Cntl 3 ECON 1001 Economics (BOK) 3 ENVE 4093 Hydraulic Systems 3 ENVE 4093L Flu Mech & Hyd Sy 2 GEOG 6071C Geog Informa Syst 3 PD 4001 Prof. Development 1 <b>CHE 4075 Undergrad Res II 1</b> COOP 4011 Practice Eval # Total SH 16	<b>Spring 2018</b> <b>Cooperative Education Work Semester</b>	<b>Summer 2018</b> <b>ENFD 5030 Prep Grad Research 1-12</b> OR <b>ENFD 5020 Undergrad Res III 1-12</b> Other Coursework 0-11 Total SH 12
<b>Fall 2018</b> <b>BOK 3</b> <b>BOK 3</b> ENVE 5001 Capstone Design I 2 ENVE 5003 Capstone Seminar 1 ENVE 6014 Sol & Haz Waste 3 GEOG 6009 Environ Geochem 3 COOP 4012 Practice Eval # Total SH 15	<b>Spring 2019</b> BoK 3 ENVE ELEC 3 ENVE ELEC 3 ENVE 5002 Capstone Design II 2 ENVE 5004 Capstone Seminar 1 ENVE 6058C Environ Instrumentn 3 Total SH 15	

BOK = Breadth of Knowledge -- General Education Requirements

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- FA Fine Arts
- HP Historical Perspectives
- HU Humanities
- SS Social Sciences

Implementation of S-STEM

Curriculum changes from ENVE faculty

AND Take one course from each of the following

- DC Diversity and Culture
- SE Social and Ethical Issues