

# REQUIREMENTS FOR THE BACHELOR OF SCIENCE/MASTER OF BUSINESS ADMINISTRATION

## GALLOGLY COLLEGE OF ENGINEERING

### THE UNIVERSITY OF OKLAHOMA

Academic Year	General Requirements	Program
For Students Entering the Oklahoma State System for Higher Education <b>Summer 2024 through Spring 2025</b>	<b>Minimum Total Credit Hours</b> ..... 156 <b>Minimum Retention/Graduation Grade Point Averages:</b> Overall - Combined and OU ..... 3.00 Major - Combined and OU ..... 3.00 Curriculum - Combined and OU ..... 3.00	<b>Industrial and Systems Engineering/ Business Administration</b>  <b>A530/F140 Q340</b>  Bachelor of Science/Master of Business Administration

OU encourages students to complete at least 32 hours of applicable coursework each year to have the opportunity to graduate in 5 years.

**Minimum Total Credit Hours:** 156

**Overall GPA - Combined and OU:** 3.00

**Major GPA - Combined and OU:** 3.00

**Curriculum GPA - Combined and OU:** 3.00

**Program Code:** A530/F140 Q340

## General Education and College Requirements

Courses designated as Core I, II, III, IV, or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list, including at least one upper-division Gen. Ed. course outside of the student's major. **Courses graded P/NP will not apply.**

**A grade of C or better is required in each course in the curriculum, including all prerequisite courses.**

### UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS

Code	Title	Credit Hours
<b>Core Area I: Symbolic and Oral Communication</b>		
<i>English Composition</i>		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
<i>Language (0-10 hours in the same language)</i>		
This requirement can be met by two years of the same language in high school:		0-10
Beginning Course (0-5 hours)		
Beginning Course, continued (0-5 hours)		
<i>Mathematics</i>		
MATH 1914	Differential and Integral Calculus I (Core I) <sup>1, 2</sup>	4
<b>Core Area II: Natural Science (including one laboratory)</b>		
PHYS 2514	General Physics for Engineering and Science Majors (Natural Science Elective with Lab) <sup>2</sup>	4
Natural Science Elective with Lab <sup>4</sup>		4
<b>Core Area III: Social Science</b>		
P SC 1113	American Federal Government	3
Choose one course <sup>3</sup>		3
<b>Core Area IV: Arts &amp; Humanities</b>		
<i>Artistic Forms</i>		
Choose one course <sup>3</sup>		3

<i>Western Culture</i>		
HIST 1483	United States to 1865	3
or HIST 1493	United States, 1865 to the Present	
Choose one course (excluding HIST 1483 and HIST 1493) <sup>3</sup>		3
<i>World Culture</i>		
Choose one course <sup>3</sup>		3
<b>Core Area V: First-Year Experience</b>		
ENGR 1413	Pathways to Engineering Thinking (Core V-FYE) <sup>5</sup>	3
<b>Total Credit Hours</b>		<b>39-49</b>

- <sup>1</sup> MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.
- <sup>2</sup> Major support requirements that also satisfy University General Education requirements.
- <sup>3</sup> To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000). See list in the Class Schedule.
- <sup>4</sup> Courses taken to fulfill the Natural Science courses must be chosen from a University-Wide General Education Approved Course List (Core II). At least one of the Natural Science Courses must be a non-Physics course. All Science courses must be for science or engineering majors and come from the natural science list maintained by the department.
- <sup>5</sup> Transfer students will need to meet the requirements of the first-year experience course as well as the engineering transfer course. Please see your advisor for your specific enrollment requirements.

## Free Electives

Electives to bring total applicable hours to the minimum total required for the degree including a minimum of 40 upper-division hours.

**Bachelor of Science in Industrial and Systems Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Industrial Engineering and Similarly Named Engineering Programs Program Criteria.**

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a **grade of C** or better is required in each course in the curriculum, including all prerequisite courses.

## Major Requirements

Code	Title	Credit Hours
<b>Required Courses</b>		
ISE 2823	Enterprise Engineering	3
ISE 2303	Design and Manufacturing Process	3
ISE 2311	Computer Aided Design and Graphics Laboratory for Industrial Engineers	1
ISE 3293	Applied Engineering Statistics	3
ISE 3304	Design and Manufacturing II	4
ISE 4113	Spreadsheet Dec Support Sys	3
ISE 4302	Systems Thinking	2
ISE 4553	Data-Driven Decision Making I	3
ISE 4623	Deterministic Systems Models	3
ISE 4223	Fundamentals of Engineering Economy	3
ISE 4633	Probabilistic Systems Models	3
ISE 4804	Ergonomics in Systems Design	4
ISE 4563	Quality & Reliability Engineering	3
ISE 4333	Production Systems/Operations	3
ISE 4663	Systems Analysis Using Simulation	3
ISE 5383	Systems Evaluation <sup>1</sup>	3
ISE 5853	Data-Driven Decision Making II <sup>1</sup>	3
ISE 4393	Capstone Design Project	3
<b>ISE Elective</b>		
Choose a 3 hour approved ISE elective (Met by Shared MBA courses)		3
<sup>1</sup>		
<b>Total Credit Hours</b>		<b>56</b>

<sup>1</sup> These courses are dual-counted, fulfilling requirements for both the undergraduate degree and the graduate business degree. Shared courses (12 hours): ACCT 5202, FIN 5102, L S 5802, ISE 5383, and ISE 5853.

## Major Support Requirements

Code	Title	Credit Hours
<b>Math and Science</b>		
MATH 2924	Differential and Integral Calculus II	4
MATH 2934	Differential and Integral Calculus III	4
Math Elective - Choose from approved list <sup>1</sup>		3
<b>ISE Technical Elective</b>		
Choose a three hour ISE Technical Elective from approved list maintained by the department (Met by Shared MBA courses) <sup>3</sup>		3
<b>Additional College Requirements</b>		

ENGR 2002	Professional Responsibilities and Skills of Engineers and Scientists	2
C S 1323	Introduction to Computer Programming for Programmers	3
or C S 1313	Programming for Non-Majors with C	
CEES 2113	Statics	3
CEES 2153	Mechanics of Materials	3
<b>Total Credit Hours</b>		<b>25</b>

<sup>1</sup> Chosen from an approved list maintained by the department. Options include MATH 2513, MATH 3113, MATH 3333, MATH 3413, and MATH 4433.

<sup>3</sup> These courses are dual-counted, fulfilling requirements for both the undergraduate degree and the graduate business degree. Shared courses (12 hours): ACCT 5202, FIN 5102, L S 5802, ISE 5383, and ISE 5853.

## Graduate Requirements

**12 hours of graduate level courses can be shared between BS and MBA degrees.**

A student who actively and satisfactorily participates in all Prelude activities will receive a grade of 'S' for B AD 5010. A student who does not satisfactorily participate in 75% of Prelude Week will be required to participate in a make-up session within the first two weeks of the semester. Failure to complete a make-up session will result in a grade of 'U' for B AD 5010, resulting in cancellation of the student's enrollment in the MBA program.

Code	Title	Credit Hours
B AD 5010	Foundations of MBA Success	0
B AD 5102	Managerial Economics	2
ACCT 5202	Financial Accounting <sup>2</sup>	2
FIN 5102	Financial Management <sup>2</sup>	2
MGT 5702	Organizational Behavior	2
MKT 5402	Marketing Management	2
MIT 5602	Management Information Systems	2
L S 5802	Business Ethics/Legal <sup>2</sup>	2
B AD 5101	MBA - Professional Development	1
B AD 5201	MBA - Professional Development II	1
Choose four credit hours (2 courses) of additional required coursework from the following:		4

ACCT 5212	Managerial Accounting	
B AD 5182	Quantitative Analysis II	
FIN 5112	Investments	
ENT 5102	Entrepreneurship & Innovation	

<b>Experiential Courses</b>		
B AD 5812	Global Business Experience	2
B AD 5822	Business Consulting Practicum	2
B AD 5832	Applied Field Project	2

<b>Capstone</b>		
B AD 5902	Strategic Management <sup>1</sup>	2

<b>Electives (20 hours)</b>		
Choose 20 hours of MBA Electives (14 hours of MBA Electives & 6 hours shared ISE Electives) <sup>2</sup>		20

<b>Total Credit Hours</b>		<b>48</b>
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- <sup>1</sup> Must make a grade of 'B' or better in B AD 5902 or it must be repeated. This is the capstone course and serves in lieu of the comprehensive examination. This requirement is non-waivable.
- <sup>2</sup> These courses are dual-counted, fulfilling requirements for both the undergraduate degree and the graduate business degree. Shared courses (12 hours): ACCT 5202, FIN 5102, L S 5802, ISE 5383, and ISE 5853.

**Note:** Courses may be satisfied on the basis of previous study with approval of the Graduate Liaison, which must be indicated on the Program of Study form. The satisfied hours will be made up via additional elective hours to meet the required total 48 degree applicable hours.

More information in the catalog: (<http://ou-public.courseleaf.com/gallogly-engineering/industrial-systems-engineering/industrial-systems-engineering-bachelor-science-master-business-administration/>).

## Suggested Semester Plan of Study

Bachelor of Science in Industrial and Systems Engineering accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Industrial Engineering and Similarly Named Engineering Programs Program Criteria.

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a grade of C or better is required in each course in the curriculum, including all prerequisite courses.

Students must take the GMAT and apply for the MBA program during the third year; minimum OU GPA and combined GPA of 3.0 is required. Students should submit an application to the School of Industrial and Systems Engineering for the accelerated program during the fall semester of the junior year. Students may enter the accelerated program based on the undergraduate degree pattern offered in the year they first enrolled in the Oklahoma State System of Higher Education or later. Students must maintain a 3.0 GPA from the time of entering the accelerated program until graduation.

Year	FIRST SEMESTER		Hours	SECOND SEMESTER		Hours
FRESHMAN	ENGL 1113	Principles of English Composition ( Core I )	3	ENGL 1213 or EXPO 1213	Principles of English Composition ( Core I ) or Expository Writing	3
	MATH 1914	Differential and Integral Calculus I ( Core I ) <sup>2</sup>	4	MATH 2924	Differential and Integral Calculus II <sup>2</sup>	4
	ENGR 1413	Pathways to Engineering Thinking ( Core V-FYE ) <sup>3</sup>	3	HIST 1483 or HIST 1493	United States to 1865 ( Core IV ) or United States, 1865 to the Present	3
		Natural Science Elective with Lab <sup>1</sup>	4	PHYS 2514	General Physics for Engineering and Science Majors ( Core II )	4
					Approved General MBA Elective <sup>7</sup>	2
	<b>CREDIT HOURS</b>		<b>14</b>	<b>CREDIT HOURS</b>		<b>16</b>
SOPHOMORE	MATH 2934	Differential and Integral Calculus III <sup>2</sup>	4	CEES 2153	Mechanics of Materials	3
	CEES 2113	Statics	3	ISE 3293	Applied Engineering Statistics	3
	ISE 2823	Enterprise Engineering	3	ISE 2303	Design and Manufacturing Process	3
	P SC 1113	American Federal Government ( Core III )	3	ISE 2311	Computer Aided Design and Graphics Laboratory for Industrial Engineers	1
	ENGR 2002	Professional Responsibilities and Skills of Engineers and Scientists	2	C S 1323 or C S 1313	Introduction to Computer Programming for Programmers or Programming for Non-Majors with C MATH Elective	3
	<b>CREDIT HOURS</b>		<b>15</b>	<b>CREDIT HOURS</b>		<b>16</b>
JUNIOR	ISE 3304	Design and Manufacturing II	4	ISE 4223	Fundamentals of Engineering Economy	3
	ISE 4113	Spreadsheet Dec Support Sys	3	ISE 4302	Systems Thinking	2
	ISE 4553	Data-Driven Decision Making I	3	ISE 4633	Probabilistic Systems Models	3
	ISE 4623	Deterministic Systems Models	3	ISE 4804	Ergonomics in Systems Design	4
		Approved Elective: Social Science (Core III) <sup>4</sup>	3	ISE 4563	Quality & Reliability Engineering	3
				Approved Elective: Artistic Forms (Core IV) <sup>4</sup>	3	
	<b>CREDIT HOURS</b>		<b>16</b>	<b>CREDIT HOURS</b>		<b>18</b>
SENIOR	ISE 4333	Production Systems/Operations	3	ISE 4393	Capstone Design Project	3
	ISE 4663	Systems Analysis Using Simulation	3	MKT 5402	Marketing Management	2
	ISE 5383	Systems Evaluation <sup>5</sup>	3	L S 5802	Business Ethics/Legal <sup>5,9</sup>	2
	ISE 5853	Data-Driven Decision Making II <sup>5</sup>	3	B AD 5201	MBA - Professional Development II	1
	ACCT 5202	Financial Accounting <sup>5,9</sup>	2	B AD 5812	Global Business Experience	2
	FIN 5102	Financial Management <sup>5,9</sup>	2		Approved General MBA Elective <sup>7</sup>	2
	B AD 5010	Foundations of MBA Success <sup>6</sup>	0		Approved Elective: World Culture (Core IV) <sup>4</sup>	3
	B AD 5101	MBA - Professional Development	1		Approved Elective: Western Culture (Core IV) <sup>4</sup>	3
	<b>CREDIT HOURS</b>		<b>17</b>	<b>CREDIT HOURS</b>		<b>18</b>
FIFTH YEAR	B AD 5102	Managerial Economics	2	B AD 5822	Business Consulting Practicum	2
	MGT 5702	Organizational Behavior	2	B AD 5902	Strategic Management	2
	MIT 5602	Management Information Systems	2		MBA Elective <sup>7</sup>	2
	B AD 5832	Applied Field Project	2		MBA Elective <sup>7</sup>	2
		MBA Elective <sup>7</sup>	2		MBA Elective <sup>7</sup>	2
		MBA Elective <sup>7</sup>	2		MBA Custom Core <sup>8</sup>	2
		MBA Custom Core <sup>8</sup>	2			
	<b>CREDIT HOURS</b>		<b>14</b>	<b>CREDIT HOURS</b>		<b>12</b>

<sup>1</sup> Courses taken to fulfill the Natural Science requirement must be chosen from the University-Wide General Education Approved Course List (Core II). At least one of the Natural Science Courses must be a non-Physics course. All science courses must be for science or engineering majors and come from the natural science elective list maintained by the department.

<sup>2</sup> MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

<sup>3</sup> Transfer students will need to meet the requirements of the first-year experience course as well as the engineering transfer course. Please see your advisor for specific enrollment requirements.

- 4 To be chosen from the University-Wide General Education Approved Course List. Three of these hours must be upper-division (3000-4000). See list in the Class Schedule.
- 5 These courses are dual-counted, fulfilling requirements for both the undergraduate degree and the graduate business degree. Shared courses (12 hours): ACCT 5202, FIN 5102, L S 5802, ISE 5383, and ISE 5853.
- 6 A student who actively and satisfactorily participates in all Prelude activities will receive a grade of 'S' for B AD 5010. A student who does not satisfactorily participate in 75% of Prelude Week will be required to participate in a make-up session within the first two weeks of the semester. Failure to complete a make-up session will result in a grade of 'U' for B AD 5010, resulting in cancellation of the student's enrollment in the MBA program.
- 7 To be chosen from an approved list of MBA electives available in the ISE office, CEC 116.
- 8 **MBA Custom Core** - choose from ACCT 5212, B AD 5182, FIN 5112, ENT 5102.
- 9 ISE Electives and Tech Electives are met by these shared courses.

**Two college-level courses in a single world language are required; this may be satisfied by successful completion of 2 years in a single world language in high school. Students who must take language at the University will have an additional 6-10 hours of coursework.**

**Courses designated as Core I, II, III, IV or V are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list.**

**Approved MATH Elective**

<b>Code</b>	<b>Title</b>	<b>Credit Hours</b>
MATH 2513	Discrete Mathematical Structures	3
MATH 3113	Introduction to Ordinary Differential Equations	3
MATH 3333	Linear Algebra I	3
MATH 3413	Physical Mathematics I	3
MATH 4433	Introduction to Analysis I	3