

La Roche College  
**ENGINEERING CURRICULUM GUIDES**  
**Combined Degree Articulation Agreement**

(Any Bachelor of Arts or Science degree from La Roche with Bachelor of Science in Engineering degree from University of Pittsburgh)

Student Name \_\_\_\_\_  
 I.D. Number \_\_\_\_\_

First Year Student  
 Change of Major

Transfer  
 Readmit

Unofficial Credit Evaluation Completed by/date: \_\_\_\_\_

This is the **unofficial evaluation** of your credits to date including transfer credits (if applicable) in your chosen major. **This evaluation is official when all official transcripts for all previous college work are received; and reviewed and approved for transferability by the Registrar's Office.** Beginning with your first semester of enrollment, your Degree Audit Report in My.LaRoche will automatically track your progress toward your degree, and guide you in planning future class schedules. Review your updated Degree Audit Report with your advisor prior to registering each semester.

**PURPOSE:** To create a pathway for engineering that is enhanced with the benefits of a liberal arts focus.

**ENGINEERING TRACKS:**

<input type="checkbox"/> Bioengineering	<input type="checkbox"/> Electrical Engineering
<input type="checkbox"/> Chemical Engineering	<input type="checkbox"/> Engineering Science (Nanotechnology: Chemistry/Bioengineering Emphasis)
<input type="checkbox"/> Computer Engineering	<input type="checkbox"/> Industrial Engineering

**REQUIREMENTS:** To successfully complete the terms of the combined degree articulation agreement, the following is required:

- must be enrolled at LRC for at least the past 2 years
- must have a QPA of 3.0 or higher(3.5 for Bioengineering) at time of application to University of Pittsburgh engineering program.
- Must receive a favorable recommendation from the combined degree program liaison at LRC
- Must successfully complete all science and math pre-requisite course requirements in this guide for their intended engineering major with a grade C or better and a GPA of 3.0 or better.
- Must have completed the major requirements prescribed by their LRC program prior to commencing study at the University of Pittsburgh or have a written plan in place to show how these requirements will be completed at the University of Pittsburgh.

<u>Credits</u>	<u>Transfer Course #/Comments</u>
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**FOUNDATION COURSES (Required for all engineering majors): 46 CREDITS**  
**SCIENCE AND MATHEMATICS COMPONENT: 28 CREDITS**

<input type="checkbox"/> MATH1032 Analytical Geometry & Calculus I	4	_____
<input type="checkbox"/> MATH1033 Analytical Geometry & Calculus II	4	_____
<input type="checkbox"/> CHEM1001/1003 General Chemistry I with Lab	4	_____
<input type="checkbox"/> CHEM1002/1004 General Chemistry II with Lab	4	_____
<input type="checkbox"/> PHYS1032/L Physics I with Lab	4	_____
<input type="checkbox"/> PHYS1033/L Physics II with Lab	4	_____
<input type="checkbox"/> CSCI1010/L Programming I with Lab	4	_____

**HUMANITIES & SOCIAL SCIENCE COMPONENT: 18 CREDITS**

Select courses from 3 different areas (not including science). One must be writing-intensive. 2 non-introductory courses from the same department or theme (suggestion: Modern language in lieu of Community/Global courses)

_____	3	_____	3
_____	3	_____	3
_____	3	_____	3

## BIOENGINEERING (39-43 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required

### MATHEMATICS (13 credits)

<input type="checkbox"/> MATH2030 Analytical Geometry & Calculus III	4	
<input type="checkbox"/> MATH2031 Ordinary & Differential Equations	3	
<input type="checkbox"/> MATH3015 Linear Algebra	3	
<input type="checkbox"/> MATH3040 Probability & Statistics I	3	

### CHEMISTRY (4-8 credits)

<input type="checkbox"/> CHEM2015/L Organic Chemistry I & Lab	4	
<input type="checkbox"/> CHEM2016/L Organic Chemistry II & Lab	(4)	<u>(Optional: but recommended for medical school)</u>

### BIOLOGICAL SCIENCES (16 credits)

<input type="checkbox"/> BIOL1003/1005 General Biology I & Lab	4	
<input type="checkbox"/> BIOL1004/1006 General Biology II & Lab	4	<u>Prereq: BIOL1003/1005</u>
<input type="checkbox"/> BIOL2021/L Comparative Vertebrate Anatomy I & Lab	4	<u>Prereq: BIOL1004/1006</u>
<input type="checkbox"/> BIOL2022/L Comparative Vertebrate Anatomy II & Lab	4	<u>Prereq: BIOL2021/L</u>

### ENGINEERING (3 credits)

<input type="checkbox"/> ENGR 0135 Statics and Mechanics of Materials I	3	<u>Pitt (Summer year 3)</u>
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### ENGINEERING/SCIENCE ELECTIVES (3 credits)

1 course in advanced life science, computer science or mathematics not already required by this program. Course must be pre-approved

3

## CHEMICAL ENGINEERING (33 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required

### MATHEMATICS (10 credits)

<input type="checkbox"/> MATH2030 Analytical Geometry & Calculus III	4	
<input type="checkbox"/> MATH2031 Ordinary & Differential Equations	3	
<input type="checkbox"/> MATH3040 Probability & Statistics I	3	

### CHEMISTRY (10 credits)

<input type="checkbox"/> CHEM2015/L Organic Chemistry I & Lab	4	
<input type="checkbox"/> CHEM2016 Organic Chemistry II	3	
<input type="checkbox"/> CHEM3036 Biochemistry	3	

### ADVANCE SCIENCE & LAB (Choose one course: 3 credits)

<input type="checkbox"/> CHEM3011 Analytical Chemistry	3	
<input type="checkbox"/> CHEM3026 Inorganic Chemistry	3	
<input type="checkbox"/> CHEM3015 Polymer Chemistry	3	

### ADVANCE SCIENCE LAB (Choose one course: 1 credit)

<input type="checkbox"/> CHEM2016L Organic Chemistry 2 Lab	1	
<input type="checkbox"/> CHEM3011L Analytical Chemistry 1 Lab	1	
<input type="checkbox"/> CHEM4033L Physical Chemistry 2 Lab	1	Prereq: CHEM4032

### ENGINEERING ELECTIVE (Choose one course: 3-4 credits)

<input type="checkbox"/> ENGR 0022 Materials Structure and Properties	3	Pitt (Summer Year 3)
<input type="checkbox"/> ENGR 0135 Statics and Mechanics of Materials I	3	Pitt (Summer Year 3)
<input type="checkbox"/> CSCI2010/L Programming II/lab	4	

### PROFESSIONAL ELECTIVES (6 credits)

2 courses in communication, advanced life science, computer science or mathematics not already required by this program. Course must be pre-approved

<input type="checkbox"/>	3
<input type="checkbox"/>	3

## COMPUTER ENGINEERING (24 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required

### **MATHEMATICS (6 credits)**

<input type="checkbox"/> MATH2031 Ordinary & Differential Equations	3	
<input type="checkbox"/> MATH3015 Linear Algebra	3	

### **COMPUTER SCIENCE (3 credits)**

<input type="checkbox"/> CSCI2010/L Programming II with Lab	4	prereq: CSCI1010/L
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### **COMMUNICATIONS (Choose one course: 3 credits)**

<input type="checkbox"/> ENGL1012 College Writing II	3	
<input type="checkbox"/> SPCH1001 Public Speaking	3	
<input type="checkbox"/> ENGL2030 Business Communications	3	
<input type="checkbox"/> ENGL3038 Writing for Public Relations	3	
<input type="checkbox"/> ENGL2029 Technical Writing	3	

### **TECHNICAL ELECTIVES (6 credits)**

Two courses (6 credits total) in advanced life science, computer science, or math. Course must be pre-approved.

<input type="checkbox"/>	3
<input type="checkbox"/>	3

### **OPEN ELECTIVES (6 credits)**

Any two courses (6 credits total) that are NOT of a similar nature to, or lower level than, a required or previously taken course can be used to fulfill this requirement. Three credits of Physical Education may also be used.

<input type="checkbox"/>	3
<input type="checkbox"/>	3

## ELECTRICAL ENGINEERING (28 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required:

### **MATHEMATICS (13 credits)**

<input type="checkbox"/> MATH2030 Analytical Geometry & Calculus III	4	
<input type="checkbox"/> MATH2031 Ordinary & Differential Equations	3	
<input type="checkbox"/> MATH3015 Linear Algebra	3	
<input type="checkbox"/> MATH3040 Probability & Statistics I	3	

### **COMMUNICATIONS (Choose one course: 3 credits)**

<input type="checkbox"/> ENGL1012 College Writing II	3	
<input type="checkbox"/> SPCH1001 Public Speaking	3	
<input type="checkbox"/> ENGL2030 Business Communications	3	
<input type="checkbox"/> ENGL3038 Writing for Public Relations	3	
<input type="checkbox"/> ENGL2029 Technical Writing	3	

### **TECHNICAL ELECTIVES (6 credits)**

Two courses (6 credits total) in advanced life science, computer science, or math. Course must be pre-approved.

<input type="checkbox"/>	3
<input type="checkbox"/>	3

### **OPEN ELECTIVES (6 credits)**

Any two courses (6 credits total) that are NOT of a similar nature to, or lower level than, a required or previously taken course can be used to fulfill this requirement. Three credits of Physical Education may also be used.

<input type="checkbox"/>	3
<input type="checkbox"/>	3

**ENGINEERING SCIENCE – NANOTECHNOLOGY: CHEMISTRY/BIOENGINEERING EMPHASIS (28-30 credits)**

Complete Foundation courses on page 1 and in addition, the following courses are required:

**MATHEMATICS (16 credits)**

<input type="checkbox"/> MATH2030 Analytical Geometry & Calculus III	4	_____
<input type="checkbox"/> MATH2031 Ordinary & Differential Equations	3	_____
<input type="checkbox"/> MATH3015 Linear Algebra	3	_____
<input type="checkbox"/> MATH3035 Complex Variables	3	_____
<input type="checkbox"/> MATH3040 Probability & Statistics I	3	_____

**CHEMISTRY (Choose 3 courses below: 9-11 credits)**

<input type="checkbox"/> CHEM2015/L Organic Chemistry I with Lab	4	_____
<input type="checkbox"/> CHEM2016/L Organic Chemistry I with Lab	4	_____
<input type="checkbox"/> CHEM3026 Inorganic Chemistry	3	_____
<input type="checkbox"/> CHEM4032 Physical Chemistry I	3	_____
<input type="checkbox"/> CHEM4033 Physical Chemistry II	3	_____
<input type="checkbox"/> CHEM3036 Biochemistry	3	_____

**ENGINEERING (3 credits)**

<input type="checkbox"/> ENGR 0022 Materials Structure and Properties	3	Pitt (Summer Year 3) _____
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## INDUSTRIAL ENGINEERING (28-38 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required:

### **MATHEMATICS (13 credits)**

<input type="checkbox"/> MATH2030 Analytical Geometry & Calculus III	4	_____
<input type="checkbox"/> MATH2031 Ordinary & Differential Equations	3	_____
<input type="checkbox"/> MATH3015 Linear Algebra	3	_____
<input type="checkbox"/> MATH3040 Probability & Statistics I	3	_____
<input type="checkbox"/> MATH3041 Probability & Statistics II	3	_____

### **ENGINEERING (6 credits)**

<input type="checkbox"/> CSCI2055 Database Theory	3	_____
<input type="checkbox"/> IE 1040 Engineering Economic Analysis	3	<u>PCHE at Pitt: Spring Year 3</u>

### **ENGINEERING ELECTIVES (maximum of 3 courses)**

<input type="checkbox"/> ENGR 0022 Materials Structure and Properties	3	<u>Pitt: Summer Year 3</u>
<input type="checkbox"/> ENGR 0135 Statics and Mechanics of Materials	3	<u>Pitt: Summer Year 3</u>
<input type="checkbox"/> MEMS 0051 Intro to Thermodynamics	3	<u>Pitt: Summer Year 3</u>
<input type="checkbox"/> CSCI2010/L Programming II/lab	4	_____

### **COMMUNICATIONS (3 credits)**

<input type="checkbox"/> SPCH1001 Public Speaking	3	_____
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### **TECHNICAL ELECTIVES (6 credits)**

Two courses (6 credits total) in advanced life science, computer science, or math. Course must be pre-approved.

_____	3	_____
_____	3	_____

Prospective IE majors must complete their international requirement with their Humanities/Social Science electives while at LRC (see [http://www.engineering.pitt.edu/Industrial/Undergraduate/International\\_Requirement/](http://www.engineering.pitt.edu/Industrial/Undergraduate/International_Requirement/)).

## **PRE-APPROVED TECHNICAL/PROFESSIONAL ELECTIVES**

Must be courses not already designated as required in your engineering track

### **ADVANCED LIFE SCIENCE**

BIOL2025/L Microbiology with Lab  
BIOL3013 Genetics  
BIOL3015 General Ecology  
BIOL3026 Cell Biology  
BIOL3036 Biochemistry  
BIOL4019 Immunology  
BIOL4030 Molecular Biology

### **COMMUNICATIONS**

ENGL1012 College Writing II  
SPCH1001 Public Speaking  
ENGL2030 Business Communications  
ENGL3038 Writing for Public Relations  
ENGL2029 Technical Writing

### **COMPUTER SCIENCE**

CSCI2010/L Programming II & Lab  
CSCI2020/L Algorithm Analysis  
CSCI2025/L Systems Programming & Lab  
CSCI2055 Database Theory  
CSCI3025 Computer Organization  
CSCI3040 Operating Systems  
CSCI4045 Telecommunications  
CSCI4055 Advanced Database Theory

### **MATHEMATICS**

MATH2050 Discrete Mathematics I  
MATH2051 Discrete Mathematics II  
MATH3041 Probability & Statistics II  
MATH3035 Complex Variables  
MATH4003 History of Mathematics  
MATH4015 Modern Abstract Algebra  
MATH4020 Geometry  
MATH4035 Real Analysis

Any other LRC course taken as a Technical or Professional elective must be pre-approved by the University of Pittsburgh, Swanson School of Engineering's Coordinator of Transfer Student Services