
MONTANA STATE UNIVERSITY
ORIENTATION 2017
College of Engineering
General Engineering
MONTANA
STATE UNIVERSITY

What do Engineers and Computer Scientists do?

Apply mathematics and science

To **solve** practical problems

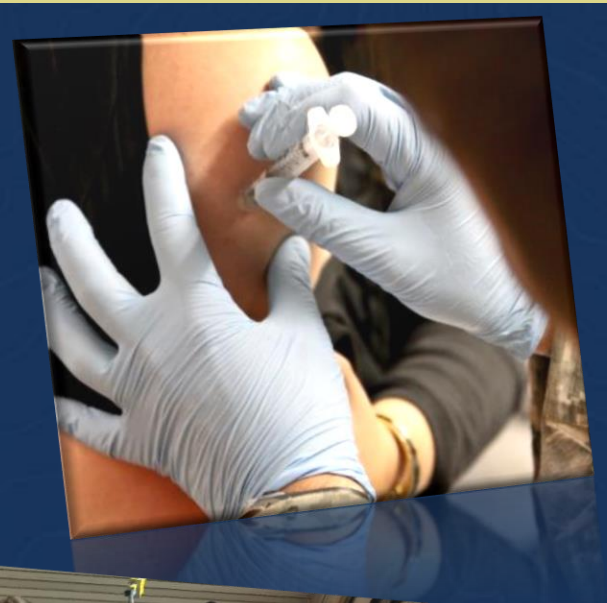
For the **benefit** of society.

But how will YOU do that?

Chemical & Biological	• Biological Engineering • Chemical Engineering
Civil	• Civil Engineering • Civil Engineering – BioResources Option • Construction Engineering Technology
Computer Science	• Computer Science
Electrical & Computer	• Computer Engineering • Electrical Engineering
Mechanical & Industrial	• Industrial and Management Systems Engineering • Financial Engineering • Mechanical Engineering • Mechanical Engineering Technology

Chemical & Biological Engineering

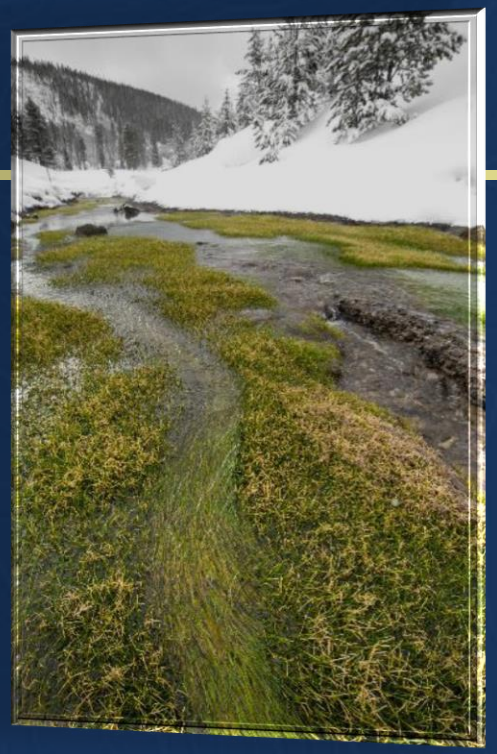
As a **Chemical and/or Biological engineer**, you would use chemical and/or biological processes to find creative ways to produce goods.



You might:

- Environmentally-friendly cleaning products
- Chemotherapy with fewer side effects
- Turn seawater into drinking water
- Mass produce vaccines to avert epidemics
- Develop Biofuels
- Develop incubators for premature babies
- Many more!

Civil Engineering

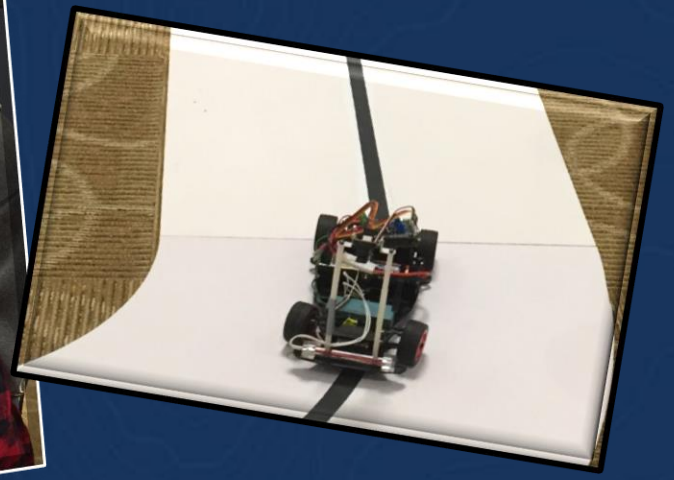


As a **civil engineer** you will be challenged to fulfill society's infrastructure needs while preserving the environment and protecting natural resources.

You might:

- Design systems to conserve water
- Remove bacteria & poisons found in well water in developing countries
- Design waste water systems
- Design earthquake-safe buildings
- Build better airport runways
- Design skyscraper structures
- Build shelters for disaster victims
- And so much more!

Electrical and Computer Engineering



As a **Electrical and/or Computer Engineer** you know the "body" and "mind" of electrical and/or computer systems. You might use this to improve existing equipment or design new and efficient devices.

You might:

- Work with embedded systems
- Develop machine intelligence
- Build networks to transfer data
- Develop ways to make computers faster, smaller, and more capable.

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Computer Science

As a **Computer Scientist** you will enter a diverse field of study as a creative problem solver, working with people and computers to help invent the future. The past few decades our world has been transformed and there is more to come!

You might:

- Help design artificial intelligence systems
- Design programs
- Operate computers
- Design video games
- Develop the Web

Mechanical Engineering

As a **Mechanical Engineer** you will work in nearly every area of technology. Often referred to as the general practitioners of the engineering profession.

You might:

- Design “smart” toys for kids
- Develop more fuel efficient cars
- Create prosthetic limbs
- Develop just about anything that involves a mechanical process

Industrial & Management Systems Engineering

As an **industrial & management systems engineer**, you will make things better and help people.

Financial Engineering

As an **financial engineer**, you will work at the intersection of business, economics, and engineering.

International Engineering Certificate

International Course Requirements

Choose a country or region of the world as a focus.
15 credits of relevant coursework must be earned.

International Experience Requirement

A study, work or service experience in the relevant country or region.

Rank Engineering/Computer Science Interests

Order the following Engineering/Computer Science areas of study from 5-1.

Order 5-1 5 = most interested 1 = least interested	Department	Advising Contacts	Location
_____	Chemical & Biological Engineering	Shelley Thomas Jeff Heys	Cobleigh 306
_____	Civil Engineering	Reneé Hecox Jerry Stephens	Cobleigh 205
_____	Gianforte School of Computing	Sharlyn Izurieta John Paxton	EPS 357
_____	Electrical & Computer Engineering	Liz Welsh Rob Maher	Cobleigh 610
_____	Mechanical & Industrial Engineering	Laura Andersen Dan Miller	Roberts 220

MSU Core 2.0 & Your Major

10 Courses

These CORE areas are <u>imbedded</u>:

- **IN** – Inquiry Natural Science
- **CS** – Contemporary Issues in Science
- **Q** – Quantitative Reasoning
- **R** – Research
- **US** – University Seminar
- **W** – Writing

<u>You choose</u> courses in these CORE areas:

- **IA** (or RA) – Inquiry Arts
- **IH** (or RH) – Inquiry Humanities
- **IS** – Inquiry Social Sciences
- **D** – Diversity

CORE 2.0				Catalog Year: 2016-2017
Check your Major Block for requirements that also fulfill CORE 2.0 requirements				
University Seminar (US)	HONR 201US	Texts and Critics: Knowledge	(4)	2016 Fall
Writing Requirement Waived: Exam Score				
Quantitative Reasoning (Q)	M 181Q	Honors Calculus I	(4)	2016 Fall
Diversity (D)	Still Needed:	1 Class in @ @ with Attribute D		
Contemp Issues & Inquiry Nat Sci or Permitted Subs	Still Needed:	Choose from 1 of the following:		
Choose either (one CS and one IN) or (any two Permitted Substitutions)				
Contemporary Science (CS) & Natural Science (IN)		(Choose from 2 of the following:) or		
Contemporary Issues in Science (CS)		(1 Class in @ @ with Attribute CS) or		
Inquiry to Natural Science (IN)		(1 Class in @ @ with Attribute IN or @ with Attribute RN)		
Permitted Substitutions for (CS) & (IN)	PHSX 220	Physics I (w/ calculus)	(4)	2016 Fall
		(1 Class in BIOB 105CS or 110CS or 160* or 170IN or 256 or 258 or 260* or BIOH 201* or 211* or BIOM 210RN or 250 or BIOO 220 or CHMY 121IN* or 123* or 141* or 143* or 151 or 153 or 211* or ERTH 101IN or 201IN or ENSC 245IN or GEO 103CS or 211 or 302 or NRSM 240 or PHSX 205 or 207* or 222* or 224* or 240* or 242*)		
Inquiry to Arts (IA)	Still Needed:	1 Class in @ @ with Attribute IA or @ with Attribute RA		
Inquiry to Humanities (IH)	Still Needed:	1 Class in @ @ with Attribute IH or @ with Attribute RH		
Inquiry to Social Science (IS)	Still Needed:	1 Class in @ @ with Attribute IS or @ with Attribute RS		
Research Core (R, RN, RA, RS, RH)	Still Needed:	3 Credits in @ @ with Attribute R or @ with Attribute RN or @ with Attribute RA or @ with Attribute RS or @ with Attribute RH		

Writing Requirements

WRIT 101 requirement

- Exempt ACT 28 or higher, AP, MUS writing assessment

If exempt, some departments will still have a writing requirement that must be met.

- WRIT 101W College Writing I
- WRIT 201W College Writing II
- WRIT 221 Intermediate Technical Writing
- UH 202 Text & Critics (if not being used as IH core)
- UH 400-409 Honors Seminar (if not being used for IS or IH core or EGEN 310R)
- Petition free elective course to meet the writing credits

List of Introductory Courses

- CSCI 107 – Joy and Beauty of Computing (Fall Only)
- CSCI 127 – Joy and Beauty of Data
- ECIV 101 – Intro to Civil Engineering (Fall Only)
- EGEN 105 – Intro to General Engineering
- ECHM 100 – Intro to Chemical Engineering (Fall Only)
- EBIO 100 – Intro to Biological Engineering(Fall Only)
- EELE 101 – Intro to Electrical Fundamentals
- EIND 101 – Intro to Industrial & Management Systems (Fall Only)
- EFIN 101 – Intro to Financial Engineering (Spring Only)
- EMEC 100 – Intro to Mechanical Engineering (Fall Only)

Selecting Classes for Fall

- Math course appropriate for your level
- Chemistry course (unless interested in CS)
- Introductory engineering course
- Writing Course or “US Course”

Then Choose a Core Area

- IA/RA Core
- IH/RH Core
- IS/RS Core
- D Core

If considering a Civil Engineering major, hold off on these two Core areas or meet with that department.

AP/IB/Dual Credit/Transfer Credits

Math Level 1, 2, 3, 4, 5

AP Course	Core Area
AP American History	Satisfies IH Core
AP Government	Satisfies IS Core
Writing Exempt	Satisfies W Core, no College Credit

Course #	Course Title	Credits (16)	Math Level
M 171Q	Calculus I	4	5
CHMY 147	Chemistry I	4	4
EGEN 105	Intro to Gen Eng.	2	1
WRIT 101W	College Writing	3	ACT/Writ Score
US Core OR	Seminar Course	3	
IA/IH/IS Core	Choose 1	3	

FIRST

- Note your Math Level (most require level 4 or 5)

SECOND

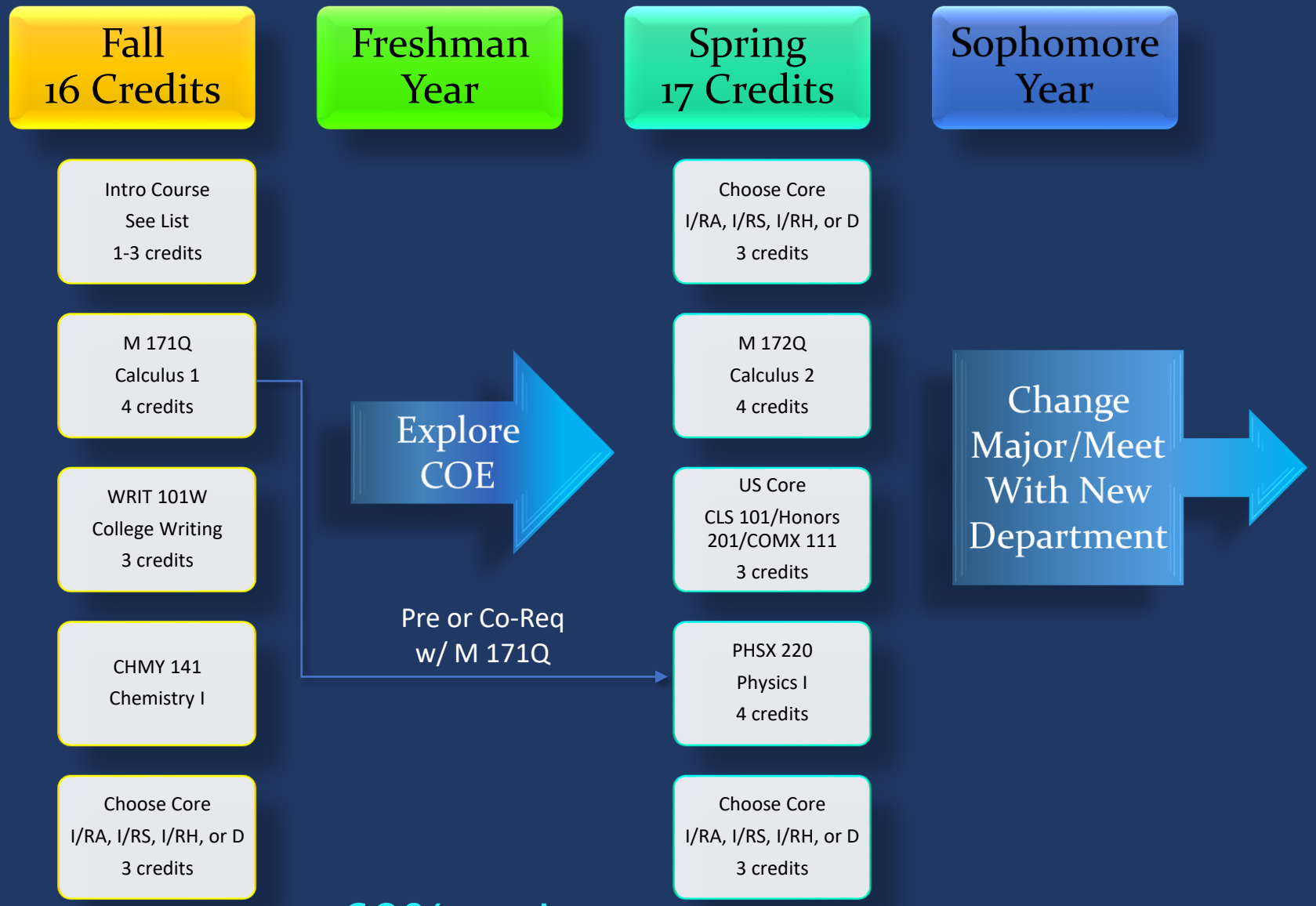
- List any AP/IB credits you expect to have by July
- List any Dual Credit or Transfer credits you have or expect to have by July or August.
- Cross off met requirements on selected Flow Sheet.

THIRD – 3 classes

- Identify Major Courses planned based on selected Flow Sheet.
- Math Course, Science Course, and selected Intro to Engineering Course.

FOURTH – 2 classes

- Choose either WRIT 101W or a US Core for Fall. Indicate which is priority.
- Choose 2 Core areas that you need (IA/RA, IH/RH, IS/RS, or D) and select a course to satisfy each requirement. If you only wish to focus on 1 core area, choose a couple classes to choose from.
- The idea is to have options in case one of your choices ends up closed, so have options.


Fall
16 Credits
Freshman
Year
Spring
17 Credits
Sophomore
Year
Intro Course
See List
1-3 credits
M 171Q
Calculus 1
4 credits
WRIT 101W
College Writing
3 credits
CHMY 141
Chemistry I
Choose Core
I/RA, I/RS, I/RH, or D
3 credits
Explore
COE
Pre or Co-Req
w/ M 171Q
Choose Core
I/RA, I/RS, I/RH, or D
3 credits
M 172Q
Calculus 2
4 credits
US Core
CLS 101/Honors
201/COMX 111
3 credits
PHSX 220
Physics I
4 credits
Choose Core
I/RA, I/RS, I/RH, or D
3 credits
Change
Major/Meet
With New
Department
60% or Less
70% or More
Use That
Flowsheet

Access Your Resources

Student Resources Available for YOU!

College of Engineering

- ePALs – Peer Mentoring
- Faculty Advisors
- Student Clubs
- EMPower
- Living Learning Communities
- Engineering Study Center
- Department Study Centers

MSU

- AY Center for Student Success
- Smarty Cats Tutoring
- Math Help Center
- Writing Help Center
- Physics Help Center
- Chemistry Help Center
- Many more

Engage Early ~ Engage Often ~ Be Persistent

COE ePALs 2017-2018

Advising & Student Resources Website

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What should you remember?

- The 5 subject areas you will be registering for tomorrow.
  (Math, Science, Writing or Speaking, Engineering Intro, Core Course [IA/RA, IS/RS, IH/RH, or D])
- Use MSU resources (ePALS, Faculty, Intro Course, AYCSS, Google).
- Learn about and use DegreeWorks. It is your online student record/file.
- Learn how major flowsheets work, and how your courses fit in them.
- Engage Early, Engage Often, Be Persistent!

Welcome to YOUR College of Engineering!

Connect!

Engage!

Succeed!