Villanova Chemical and Biological Engineering

- Curriculum & Faculty
- Senior Projects
- Research Opportunities
- Extracurricular Activities
- Where are the now?
VU CBE Community: The Faculty

you will know them,

and they will know you
(by name)

by the time you graduate
## Curriculum: Freshman Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tr>
<td>• General Chemistry I</td>
<td>• General Chemistry II</td>
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<td>• General Chemistry Lab</td>
<td>• Calculus II</td>
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<td>• Calculus I</td>
<td>• ACS – Moderns</td>
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<td>• ACS – Ancients</td>
<td>• Physics I (Mechanics)</td>
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<tr>
<td>• Theology (Faith, Reason &amp; Culture)</td>
<td>• Intro to Chemical Processes</td>
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<tr>
<td>• Eng. Interdisciplinary Projects</td>
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**What about my AP?**

*We recommend if you got less than a 5 on the exam to retake it*
EGR 1200: Interdisciplinary Projects

Goals of EGR 1200:
• Intro to design thinking
• Basic engineering tools
• Teamwork
• Excite & engage with hands-on projects

Projects have included:
• Biomimcry
• Biomedical Signal Analysis
• Sustainable Systems Design
• DIY Biosensor
• Water Energy Nexus
Intro to Chemical Processes

Intro to design, teamwork, and chemical engineering

Cocoa beans are sent from farm to processing facility.

1. Chemical Engineers look at the WHOLE PROCESS

Picture from Total Specialties
Curriculum: Beyond Freshman Year

Math & Science Competencies
Differential Equations, Organic Chemistry I, Organic Chemistry II, Physical Chemistry
+ 2 Science Electives (Biology, Chemistry, Physics of your choice*)

Core Chemical Engineering Competencies

UNIQUE to VILLANOVA
CO-OP (optional summer-fall senior year), 1 FREE Elective (ANYTHING), Technical Communications, 5 Chemical Engineering Electives such as: Intro to Biotech, Material Science, Polymers, Petroleum Engineering, Air Pollution, Brewing Science & Technology, Nanomaterials, Cellular Engineering, Alternative Energy
Minors available for CBE students

• Biochemical Engineering
  take additional biology courses, and chemical engineering electives focused on biomaterials, bioprocess, bioengineering lab techniques

• Engineering Entrepreneurship
  work with professors of practice (entrepreneurs) to learn the fundamentals of the entrepreneurial mindset and get the chance to apply them to your own idea

• Other common minors
  Biology, Chemistry, Biochemistry, Math, Foreign Language

• Some not so common minors
  Theology, Theatre, Psychology,...
Senior Project Studio

- 2 semesters during senior year (optional)
- Hands on research/design projects
- “In house” co-op

- Corporate-sponsored
- Student self initiated
- Research project with faculty
Research Opportunities

Ways to get involved:

• Senior Project
• Volunteer
• Work-study
• Summer Rosas Scholars

Some Research Areas:

• Genetic & Cellular Engineering
• Systems Biology
• Catalysis & Alternative Energy
• Polymers & Biomaterials
• Sustainable chemistry
• Water treatment
The Community: VU CBE Students Engineering Clubs

• American Institute of Chemical Engineers
• OXE (Honors)
• Society of Women Engineers
• National Society of Professional Engineers
• NovaCANE
The Community: VU CBE Students

ChemE Car

Design, build and race a car run only by chemical reaction!

Home made 9V battery
Study Abroad & Service Break Trips

Office of Education Abroad (sophomore spring semester)

Countries such as: England, Wales, Ireland, Italy, Australia
Every year we have around 2-6 students study abroad

VESL: Villanova Engineering Service Learning

STEM projects in Cambodia

Water and infrastructure projects in Panama
Outcomes

BY THE NUMBERS

• Successful placement rate: 92.3%
  – 78.9% employed
  – 7.7% continuing education
  – 5.8% other endeavors

• Average starting salary: $65,036

FEATURED EMPLOYERS

3M Company
Air Liquide
Ankura Consulting
Croda
FMC
Johnson Matthey
JP Morgan Chase
Mars Wrigley
Naval Sea Systems Command
Praxair
U.S. Navy
Where are They Now? VU CBE 2019

Deyjah Foster ‘19
Research & Development, Mars Wrigley

Anthony Busa ‘19
Process Improvement Specialist, Johnson Matthey
The Community: VU CHE Alumni
Class of 2019
WE HOPE TO SEE YOU IN WHITE HALL!

Have questions later?
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