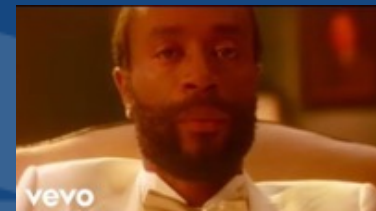




Music Corner

Bobby McFerrin – Don't Worry Be Happy



# ChemBE Class Meeting Spring 2022

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Dr. Lilian Lam Josephson  
Director of Undergraduate Studies

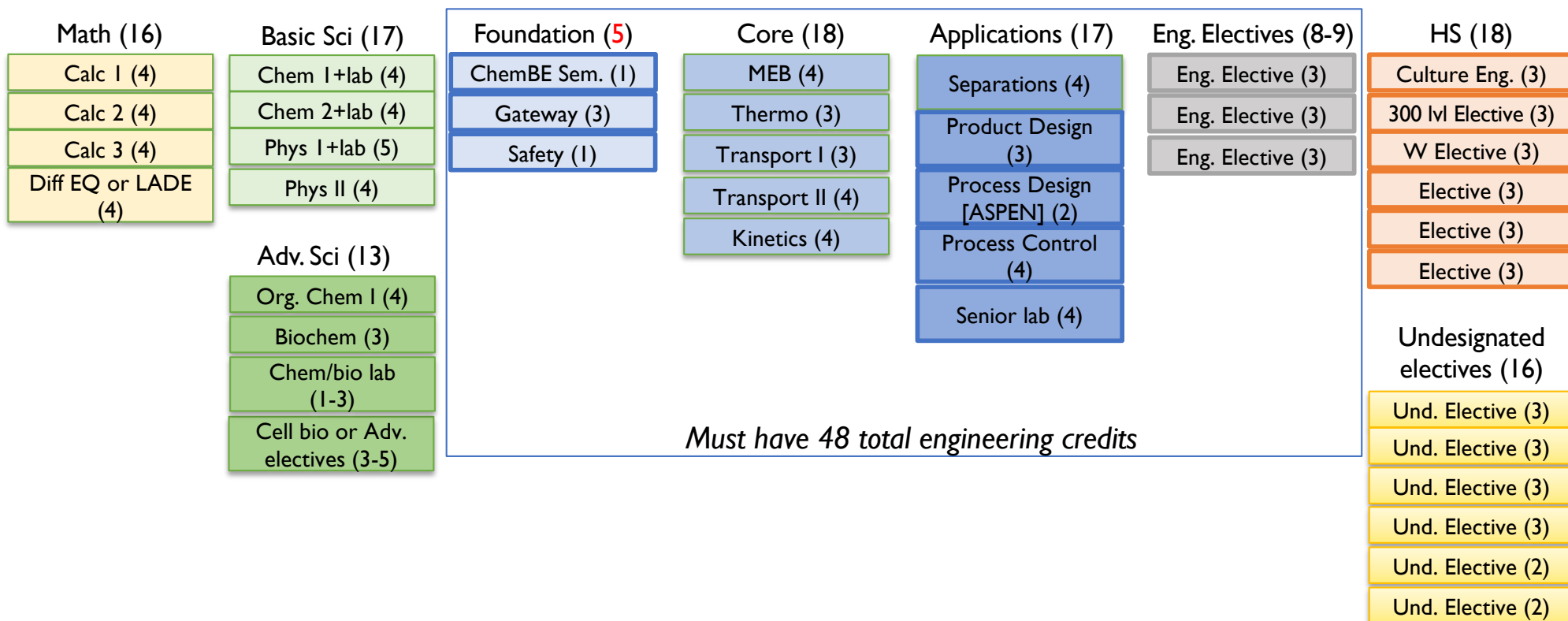
# Objectives

- ▶ How are you doing this semester?
- ▶ Timeline; Advising Meeting process update reminder!
- ▶ Overview of the curriculum
  - ▶ Computing/programming
  - ▶ Design
  - ▶ Research credits
  - ▶ Engineering/track credits
- ▶ Useful information for each class and deadlines
- ▶ Q&A

# Timeline and Advising Meetings

- ▶ Course schedule available Mon Mar 28
- ▶ Advising week April 4 (Mon) – April 8 (Fri)
  - ▶ Sign up for an appointment with your faculty advisor. They will contact you.
  - ▶ Prepare your Fall '22 Schedule *and* Checklist prior to the advising meeting
    - If you know how to use Degree Audit planning tool, you can use that as a supplement to the Checklist.
  - ▶ **New Process (reminder)**: After your meeting, your advisor will leave a comment in Degree Audit to indicate that you have had the meeting. Please do NOT email the checklist to the UG Coordinator!
  - ▶ Mr. Weinstein or your advisor will lift the hold on your SIS registration

# ChemBE curriculum overview



## Computing/programming and statistics

- ▶ Everyone takes Gateway Computing (Python) EN.540.113 from now on
  - ▶ We accept AP Credits from Computer Science A – but we strongly recommend you take 1-credit EN.500.113 Bootcamp (Python) if you are not familiar with the language
  - ▶ Juniors & Seniors, make sure you have one Programming course (Gateway, Mod&Stat, Java, Intermediate) to meet the computing requirement
  
- ▶ UG stat/comp electives (we strongly recommend you take at least one)
  - ▶ EN.540.382 Statistical Modeling and Analysis with Python (2 credits)
  - ▶ EN.540.405 Modern Data Analysis and Machine Learning for ChemBEs (3 credits)

# Design courses

- ▶ **Every student** must complete
  - ▶ EN.540.315 ChemBE Process Design (2 credits, spring)

- ▶ **Every student** must complete one of the following Product Design options:

Option 1 – One Semester

540.314 ChemBE Product Design (3 cr., spring)

Option 2 – ChemBE 2 semesters

540.309 ChemBE Product Design 1 (3 cr., fall and spring)

540.310 ChemBE Product Design 2 (3 cr., fall and spring)

Not offered AY 22

Option 3 – [Multidisciplinary Engineering Design](#), 2 semesters

500.308 MultiD Engineering Design 1 (3 cr., fall)

500.309 MultiD Engineering Design 2 (3 cr., spring)

## Notes

If a student begins the year-long design sequence, they will not receive credit for the 1<sup>st</sup> part until the 2<sup>nd</sup> part is completed.

If you want more design:

*FYS: Design Thinking & Innovation*  
(3 cr., S22)

540.290/291 ChemBE Design  
(sophomores)

540.390/391 ChemBE Design  
(juniors)

# Research credits

- ▶ You can get 6 credits of research per year; One credit = 40 total hours on project
- ▶ **New since Spring 2022**
  - ▶ Research in WSE – 4 credits can be counted towards engineering credits (just notify DUS/UG Coord.)
    - If you work in a ChemBE lab, sign up for 540.511 (fall and spring)
    - If you work in another WSE lab, sign up under that department's research number (5xx.5xx.)
  - ▶ Research outside of the engineering school
    - Sign up for 540.501 through your advisor (fall and spring)
    - To count these research credits as engineering electives, fill out the [Research Credit Elective Request form](#) **after** the semester has been completed; you will have to submit rationale as to why this counts as engineering research
- ▶ **To apply ANY research credits as MCB/IN track credits**, fill out the [Research Credit Elective Request form](#) **after** the semester has been completed

# Engineering electives

- ▶ Any course with an “E” designation in WSE
  - ▶ *EXCEPT* courses with repeat of content (ex. Thermodynamics, fluid mechanics)
  - ▶ NO probability, statistics, prob/stat classes from AMS department (these are *math* credits!)
  - ▶ CLE courses are not often E or H or S
- ▶ See (non-exhaustive) list of approved engineering electives in UG Advising Manual (pg. 20-22)
  - ▶ Bioengineering and nano electives *are* engineering electives!
  - ▶ Not all new courses are reflected in UG Manual – check Course Catalogue/SIS for latest info and offering times



## ChemBE Electives Fall 2022

EN.540.382 – Statistical Modeling and Analysis with Python

EN.540.407/607 – Renewable Energy Technologies

EN.540.415/615 – Interfacial Science with Applications to Nanoscale Systems

EN.540.418 – Projects in the Design of a Chemical Car (*only if you plan to be in 419 in S23!*)

EN.540.421 – Project in Design: Pharmacodynamics (*need approval*)

EN.540.440/640 – Micro/Nanotechnology

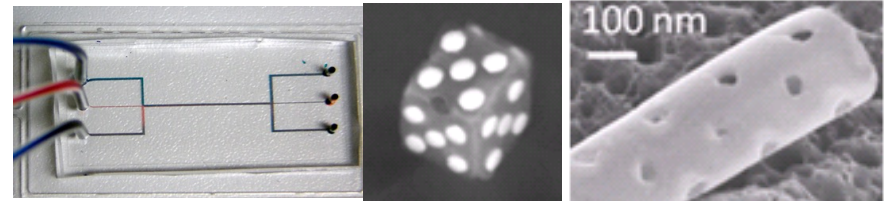
EN.540.465/665 – Engineering Principles of Drug Delivery

EN.540.468 – Introduction to Nonlinear Dynamics and Chaos

# Track requirements

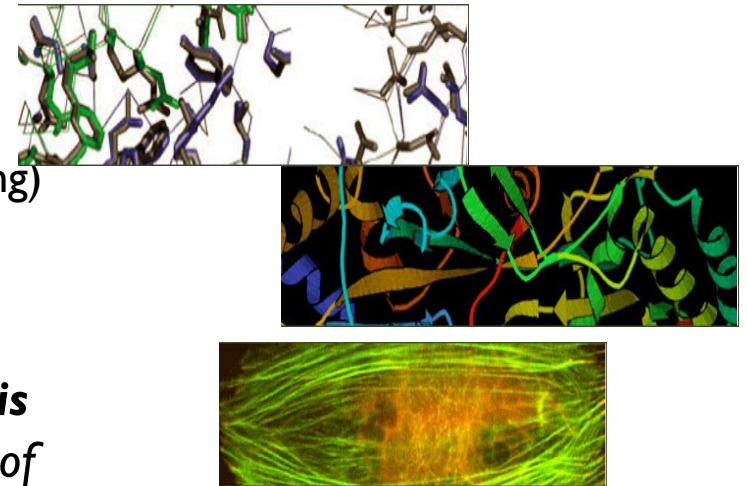
## Interfaces and Nanotechnology

- 030.305 Physical Chemistry Instrumentation Lab (spring)
- 030.452 Materials & Surface Characterization (fall)
- 6 approved IN-track elective credits



## Cellular and Molecular Bioengineering (MCB)

- 020.315 Biochem Lab (1 cr.) or 250.253 PEBL (3 cr.)
- 020.306 Cell Bio (spring) or 540.307 Cell Bio for Engineers (spring)
- 6 approved MCB-track elective credits



***You need DUS approval (not your advisor) if the course is not currently approved for tracks – provide the full syllabus of the course when submitting your request through email.***

# Rising Sophomore Fall

## Registration starts April 15 (Fri)

- 110.302 Differential Equations (pre-req for Transport I)
  - or 553.291 LADE
- 030.205 Organic Chem I (fall only!)
- 540.202 Intro to Process Analysis
- 540.303 Transport I (if you already completed Diff Eq/LADE)
- H/S Course
- If you have completed 540.202 and Calc 3, then you can take Thermo (540.203)

**Planning your summer** – courses at JHU or other university (approval required)

Research – ask now!

Internship – Keep an eye out for ChemBE\_CEO announcements, LDL, and [Handshake](#)

*Interested in study abroad or co-op? Junior Fall is a good time!*

*Looking ahead to Sophomore  
Spring  
Finishing ChemBE lower-level  
courses*

## Rising Junior Fall

### Registration starts April 13 (Wed)

- 540.304 Transport II (Fall only!)
- 540.490 Process Safety (Fall only!)
- Adv. science lab (Biochem lab, PEBL, or Orgo lab)
- 661.315 Culture of Engineering Profession (W) (fall/spring)
- Electives (H/S, engineering, undesignated)

Plan your summer – research, internship, REUs

Keep an eye out for ChemBE\_CEO announcements, LDL, and [Handshake](#)

*Looking ahead to Junior Spring*  
*Kinetics, separations, cell bio or*  
*adv. chem/bio*

## Rising Senior Fall

### Registration starts Apr 11 (Mon)

- 540.311/313 Senior lab (Fall only!)
- 540.409 Dynamic Modeling & Control (Fall only!)
- ~~540.309~~ or 500.308 (if you want year-long Design)
- H/S – you need 18 (6 3-cr classes), make sure you've taken one 300 level, and two W
- Engineering electives – you need 8-9 E credits, count them up!
- You need 128 credits to graduate – count them up!

Talk to your faculty advisor/DUS/APC before making changes

Tracks don't show on diploma; you don't need to apply for honors either

*Looking ahead to Senior Spring*  
*Product Design, Process Design,*  
*wrapping up!*

## Exciting times ahead for our rising seniors!

- Keep your credit load reasonable to allow time for post-graduation preparations!
- Watch for rules on retaking a course: a *retake erases the previous grade*.
- You should be working on job search, grad/med school applications right now!
  - GRE? MCAT?
  - If you are going to grad school, consider 600 level courses (adv math, more computing, etc.)
- Don't wait too long to ask for letters of recommendations
  - Ideally, give the professors at least one month of notice
  - When emailing the profs, give them the deadline, how the letters will need to be submitted, how many places will they need to submit it, **AS MUCH INFO AS YOU CAN GIVE**
  - Kindly remind the profs a week before the deadline

## ChemBE news

### Some new faces:



Dr. Brandon Bukowski



Dr. Yayuan Liu




Dr. Nagma Zerin

### Other news:

Dr. Marc Donohue is retiring!

## BS/MS: overview



Questions?  
Please see Dr.  
Ratanalert

Two options: Research (thesis) and Course-based

**Research:** 6 courses (4 ChemBEs) and research

Work in a ChemBE lab under the supervision of an advisor.

We can help you find an advisor.

**Course-based:** 10 courses (6 ChemBEs)

- Both programs: 2 courses can count toward both B.S. and M.S.E. but they need to be at the 600-level (very few exceptions)
- Additional 600-level courses may only count towards one degree.
- GPA: generally a minimum of 3.0 (few exceptions)
- NO GRE required and only one recommendation letter (Advisor)
- You can start research early
- Students from the program tend to place well: Intel, Accenture, Nasa, Genentech, Biotech industry, Med School, Grad School.



# **COUNT YOUR CREDITS**

**128 total**

**48 engineering**

**13 advanced chemistry/biology**

**16 math**

**6 HS courses (at least 3 credits  
each)**

# CHEMBE COURSE REGISTRATION ADVISING



General  
Registration and  
Coursework Q&A



1-on-1  
Scheduling  
Advice



Course  
recommendations  
from  
upperclassmen

**MARCH 30, 1:30-2:30PM. MARYLAND HALL 220**

## DUS/APC help hours



Director of Undergraduate Studies  
Dr. Lilian Lam Josephson  
[llj@jhu.edu](mailto:llj@jhu.edu)



UG Academic Program Coordinator  
Brett Weinstein  
[ugcoordinatorchembe@jhu.edu](mailto:ugcoordinatorchembe@jhu.edu)

**Virtual**, walk-in DUS hours: W 10-11 am, F 10:30 am -12 pm  
at <https://wse.zoom.us/my/lljosephson>

[Qs about UG curriculum? First check the ChemBE Undergraduate Advising Manual \(Updated July 2021\)](#)

# Open Q&A

