Get to know the Departments of Chemistry and Biochemistry

(Two separate departments as of summer 2018)

Susan Hendrickson, Senior Instructor

Robert Parson, Professor

Discipline-Based Education Research

Monday, October 22, 2018

Where are we?

Chemistry: Main Campus- Cristol & Ekeley

Biochemistry: East Campus - JSCBB

The People: Chemistry and Biochemistry Faculty

Chemistry:

- 17 Full Professors
- 8 Associate Professors
- 5 Assistant Professors
- 5 Instructors (1 Senior)
- 2 Lecturers

Biochemistry:

- 15 Full Professors
- 2 Associate Professors
- 2 Assistant Professors
- 1 Instructor

Undergraduate Courses

Lower Division Service Courses:

CHEM 1011	Environmental Chemistry 1 - for non-science majors	lecture only	3 credit hours	Fall	~200/ year
CHEM 1031	Environmental Chemistry 2	lecture & lab	4 credit hours	Spring	~25/ year
CHEM 1021	Introductory Chemistry - for students with little/no chemistry background	lecture & lab	4 credit hours	Fall, spring & summer	~700/ year
CHEM 1113/ 1114	General Chemistry 1/ Lab	lecture & recitation /lab	4/1 credit hours	Fall, spring & summer	~1700/ year
CHEM 1133/ 1134	General Chemistry 2/ Lab	lecture & recitation /lab	4/1 credit hours	Fall, spring & summer	~1200/ year
CHEM 1221	Engineering Chemistry Lab	lab only	1 credit hour	Fall & spring	~450/ year

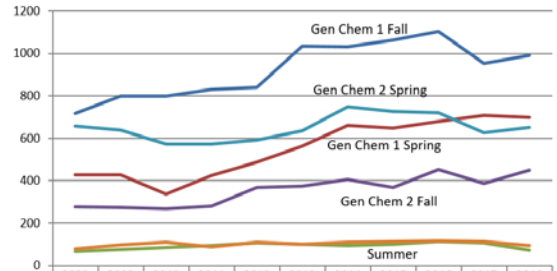
Primarily taught by Instructors & Lecturers.

Undergraduate Courses

Details about General Chemistry 1 & 2:

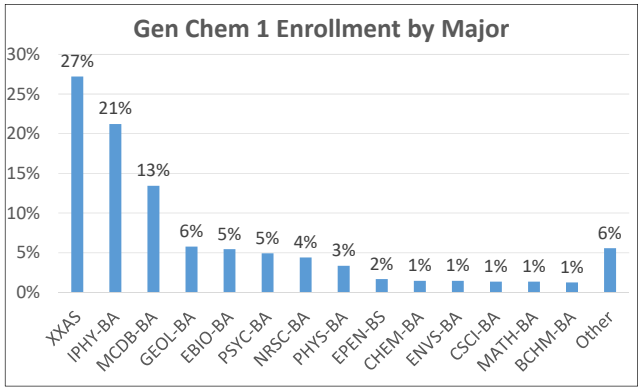
- Lecture = 3 hours/week
  - Mostly large lecture sections (~350)
  - Some smaller lecture sections (~190)
  - Two RAP programs- Health Professionals and Baker- with much smaller sections (<40)
  - Some SASC sections for Intro Chem & Gen Chem 1
- Recitation sections (<21 students) = 1 hour/week
- Lab sections (<21 students) = 2.5 hours/week
- Drop-in Helprooms are provided for each class

General Chemistry 1 & 2 Enrollments 2008 - 2018

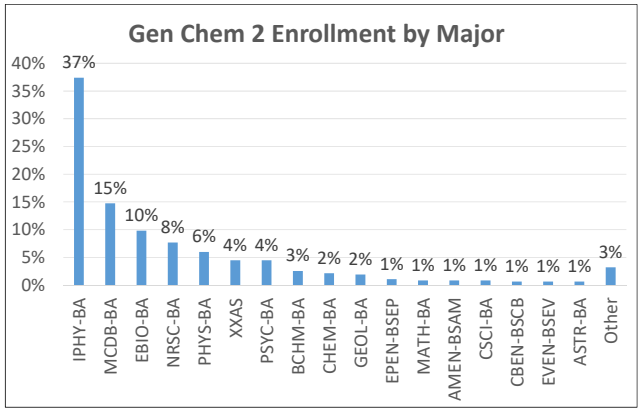


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1113 Fall	718	800	799	831	839	1036	1032	1063	1103	952	990
1113 Spring	429	429	338	424	489	563	660	647	679	708	700
1113 Summer	66	75	87	94	109	102	94	100	114	108	72
1133 Fall	277	274	269	282	368	374	407	370	453	386	450
1133 Spring	658	638	574	574	591	637	750	727	722	626	650
1133 Summer	80	97	110	89	110	100	110	114	118	113	96

A typical fall General Chemistry 1 course enrollment by major.



A typical spring General Chemistry 2 course enrollment by major.



Undergraduate Courses

Upper Division Service Courses:

CHEM 3311/ 3321	Organic Chemistry 1/ Lab	lecture & recitation /lab	4/1 credit hours	Fall, spring & summer	~1100/ year
CHEM 3331/ 3341	Organic Chemistry 2/ Lab	lecture & recitation /lab	4/1 credit hours	Fall, spring & summer	~700/ year
CHEM 4611	Principles of Biochemistry	lecture	3 credit hours	Fall, spring & summer	~480/ year

Undergraduate Courses

New curriculum started in Fall 2016.

Majors Courses:

CHEM 1400/1401	Foundations of Chemistry	lecture & recitation /lab	4/1 credit hours	Fall only	~120/ year
CHEM 3451/3361	Organic Chemistry 1 for Chemistry and Biochemistry Majors/ Lab	lecture & recitation /lab	4/2 credit hours	Spring only	~100/ year
CHEM 3471/3381	Organic Chemistry 2 for Chemistry Majors/ Lab	Lecture & recitation /lab	4/2 credit hours	Fall only	~14/ year
CHEM 3491/3341	Organic Chemistry 2 for Biochemistry Majors/ Lab	Lecture & recitation /lab	4/1 credit hours	Fall only	~50/ year

Curriculum requirements for Chemistry vs Biochemistry majors differs after Organic Chem 2.

Undergraduate Courses

Chemistry Majors Courses:

CHEM 2100/2101	Chemical Energetics and Dynamics	Lecture & recitation/ lab	4/1 credit hours	Spring only
CHEM 4511/4581	Physical Chemistry 1/Lab	lecture/ lab	3/1 credit hours	Fall & spring
CHEM 4531/4591	Physical Chemistry 2/Lab	lecture/ lab	3/1 credit hours	Fall & spring
CHEM 4171	Instrumental Analysis – Lecture and Lab 1	Lecture & lab	3 credit hours	Fall only
CHEM 4181	Instrumental Analysis – Lecture and Lab 2	Lecture & lab	3 credit hours	Spring only
CHEM 4011	Modern Inorganic Chemistry	Lecture	3 credit hours	Fall & spring

Also required: Calculus 1, 2 & 3; PHYS 1110, 1120 & 1140

CHEM minor: Gen Chem 1 & 2, Organic 1 & 2, CHEM 4511 + one of (CHEM 4531, CHEM 4011 or CHEM 4171)

Undergraduate Courses

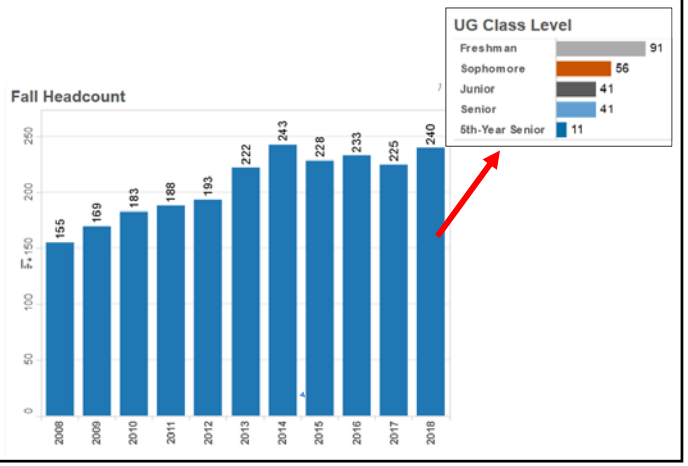
Biochemistry Majors Courses:

CHEM 4400	Core Concepts of Physical Chemistry for Biochemists	Lecture & recitation	4 credit hours	Fall & spring
CHEM 4700	Foundations of Biochemistry	Lecture & recitation	4 credit hours	Fall & spring
CHEM 4720	Metabolic Pathways and Human Disease	Lecture & recitation	4 credit hours	Fall & spring
CHEM 4740	Biochemistry of Genome Transmission, Expression and Regulation	Lecture & recitation	4 credit hours	Spring only
CHEM 4761	Biochemistry Lab	Lab	4 credit hours	Fall & spring

Also required: Calculus 1 & 2; PHYS 1110, 1120 & 1140, an intro biology sequence and 3+ advanced electives

BCHM minor: Gen Chem 1 & 2, Organic 1 & 2, CHEM 4400 + one of (CHEM 4611 or CHEM 4700)

Chemistry Majors enrolled at CU



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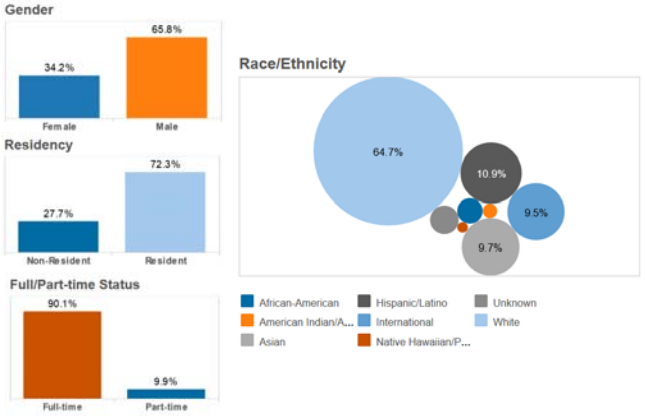

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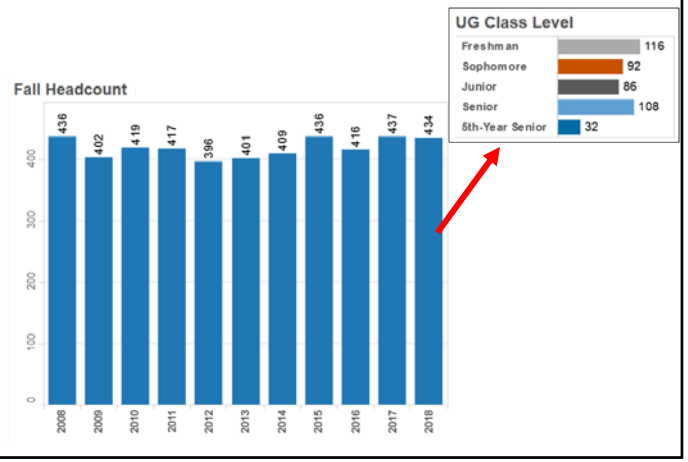

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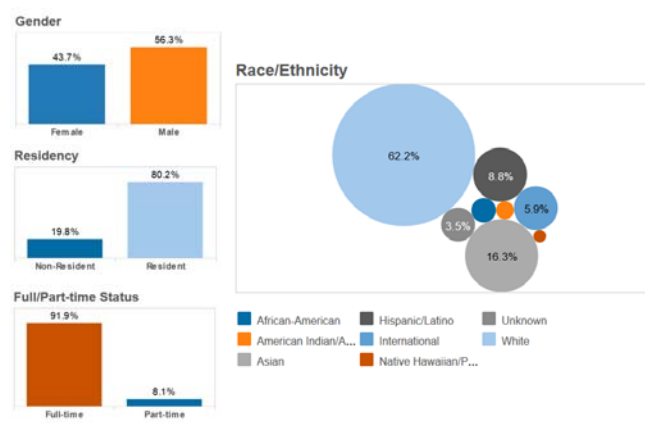
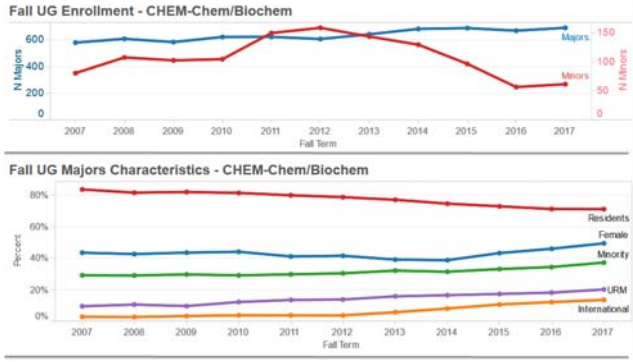


More stats for CHEM/BCHM majors combined



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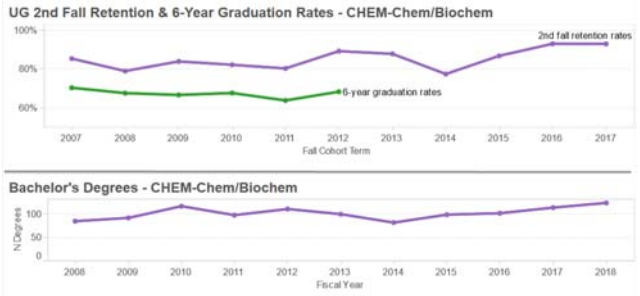

Participation in the LA Program

- **Started using LAs in Spring of 2007**
- **Developed recitation materials that emphasize group work in Gen Chem 1 & 2**
- **LAs are used in Gen Chem 1 & 2 regularly**
- **Occasionally used in Intro Chem**
- **Used one semester in Organic 1**
- **Also used in upper division biochemistry classes – CHEM 4400 & 4720**

Better Placement for Incoming Students

Chemistry Preparation & Placement Program
CHEM P^3

The purpose of CHEM P^3 is to guide you to the correct beginning chemistry course at CU Boulder. Several assessments are available in order to determine the course that is suited for you based on your background in chemistry and math. Your performance on the assessments, along with a conversation with your academic advisor, will help you to select a chemistry course in which you should be successful.

Online prep materials-

- Review materials, ALEKS, Self-Assessment Exam

Diagnostics and Readiness Test (DART)-

- Given the first week of Gen Chem 1
- Enrollment recommendation (Intro Chem or Gen Chem 1) based on DART score
- Fall 2017 only – mandatory placement based on DART score