

KYLE C. PEET

Curriculum Vitae

EDUCATION

Massachusetts Institute of Technology, Cambridge MA Sept 2008 – Feb 2015
 Ph.D. in Environmental Biology, Department of Civil and Environmental Engineering
 Thesis: *Demonstrating biocompatibility with supercritical CO₂: Biphasic cultivation of Bacillus spp. and probing acclimation mechanisms through proteome and lipid analysis*
 MIT Energy Initiative Fellowship (2008 – 2009)

Worcester Polytechnic Institute, Worcester MA Aug 2004 – May 2008
 B.S. in Biology and Biotechnology: Concentration in Cellular & Molecular Biology & Genetics
 Thesis: *Optimizing microbial ethanol: Carbon source influence and detrimental genes for ethanol production*
 Phi Sigma Biological Honors Society, Gamma Eta Chapter (2007)

TEACHING EXPERIENCE

Seattle University, Seattle WA Mar 2020 – Present
Part-time Faculty, Biology Department
 Currently teaching: *Principles of Cell & Molecular Biology; Bio I: Molecular & Cellular; Confronting Climate Change* Sept 2021 – Dec 2021
Global Health and Sustainability Mar 2021 – June 2021

- Upper level University Core course. Taught 1 lecture section (online, asynchronous)

Current Topics in Biotechnology Mar 2020 – June 2020

- Upper level seminar-style course. Taught 1 lecture section (online, synchronous)

University of Washington Tacoma, Tacoma WA Winter & Summer 2020
Part-time Lecturer, School of Interdisciplinary Arts and Sciences
General Microbiology with Lab

- Upper level core course for Biomedical Science majors
- Taught 1 lecture and 1 lab section (online, mixed synchronous/asynchronous) (Summer 2020)

Introductory Biology I with Lab

- Introductory course focused on evolution, ecology, biodiversity, and genetics
- Taught 1 double lecture and 2 lab sections (Winter 2020)

Regis College, Weston MA Aug 2017 – June 2019
Assistant Professor of Environmental Sustainability, School of Arts and Sciences
 Program Director for Environmental Sustainability Major/ Minor
General Microbiology with Lab

- Introductory microbiology for nursing and allied health students
- Taught 4 lecture and 4 lab sections

Ecology with Lab

- Upper level elective for Biology and Environmental Sustainability majors

- Taught 1 lecture and 1 lab section
 - Integrated Zebrafish behavioral ecology research into lab curriculum through an undergraduate independent study
- Environmental Microbiology with Lab*
- Upper level elective for Biology and Environmental Sustainability majors
 - Taught 1 lecture and 1 lab section
- Principles of Sustainability Science for the Environment*
- Introductory core course for Env. Sustainability major.
 - Taught 2 lecture sections
- Ethics and Policy in Environmental Sustainability*
- Core course for Env. Sustainability major.
 - Taught 1 lecture section
- Environmental Science with Lab*
- Upper level core course for Env. Sustainability major; Biology major elective
 - Taught 1 lecture and 1 lab section
- Sustainability and Human Systems*
- Upper level core course for Env. Sustainability major. Developed, not taught
 - Lecture sections met 2.5 hours per week; Labs met either 2 or 3 hours per week

Massachusetts Institute of Technology, Cambridge MA

Feb 2016 – May 2017

Instructor, Experimental Study Group

Introductory Biology

- Course format blended lecture and discussion with frequent use of classroom survey technology (clicker-questions) and 1-2 days per week devoted to problem solving workshops
- Taught 3 sections, met 5 hours weekly, 2 hours weekly office hours

Wellesley College, Wellesley MA

Sept 2016 – Dec 2016

Visiting Lecturer, Dept. of Biological Sciences

Introductory Cellular and Molecular Biology

- Taught 1 section, met 70 minutes twice per week, 2 hour weekly office hours
- Counseled career advice, wrote letters of recommendation

Introductory Cellular and Molecular Biology Laboratory

- Laboratory course with emphasis on experimental design, data analysis, scientific presentation, science writing, and laboratory techniques
- Taught 1 section, met 3.5 hours once per week, 1 hour weekly office hours

Mount Ida College, Newton MA

Jan 2016 – May 2016

Adjunct Faculty, College Natural and Applied Sciences

Biology of Organisms Laboratory, 2 Sections

- Laboratory course combining experiments with student projects and presentations
- Taught 2 sections, met 2 hours once per week, 2 hour weekly office hours

Massachusetts Institute of Technology, Cambridge MA

Teaching Assistant, Dept. of Civil and Environmental Engineering

Environmental Health Engineering

Fall 2010 & Spring 2013

- Conducted weekly help sessions on course material and problem sets, graded weekly assignments
 - 2 sections, 3 hours lecture and 1 or more hour help sessions, weekly
- Environmental Chemistry and Biology Laboratory* Spring 2010 & Spring 2012
- Instructed laboratory techniques, mentored undergraduate research projects, managed and set up laboratory, and graded pre and post lab assignments
 - 2 sections, 1 hour lecture and 3 hour lab, weekly

MENTORING EXPERIENCE

Regis College, Weston MA

Thesis Committee Member for 2 Masters theses Mar 2019 – May 2020

- Advised projects involving campus sustainability for students in the Master of Science in Applied Behavior Analysis program

Advisor for 1 undergraduate Independent study Jan 2018 – May 2018
Zebrafish behavioral ecology lab

- Mentored the design of an inquiry-based behavioral ecology lab module

Advisor for 1 undergraduate Honors thesis Sept 2017 – Dec 2017
Green Chemistry at Regis College

- Investigated methods to increase environmental sustainability of Regis College's chemistry lab curricula

Massachusetts Institute of Technology, Cambridge MA

Instructor, Experimental Study Group Feb 2016 – May 2017

Managed undergraduate teaching assistants for *Introductory Biology*

- Managed 3 or more TAs per semester who helped with grading and office hours
- Counseled career advice, wrote letters of recommendation

Ph.D. Candidate, Dept. of Civil and Environmental Engineering Sept 2008 – Jan 2015

Mentored 5 undergraduates and 1 graduate student. Research projects investigated aspects of microbial growth under high-pressure CO₂

- 1 publication includes an undergraduate mentee (Vanya Britto)
- Taught experimental design and laboratory techniques
- Counseled career advice and graduate school applications
- Students worked 5-10 hours/week during semesters, or 40 hours/week for summer research and projects varied in length from 2 months to 1 year

Mentored 1 undergraduate project investigating microbial predator-prey dynamics

- Examined molecular anti-grazing defense mechanisms (Type III secretion) with gene knockout models created in *Vibrio harveyii*

East End House, Cambridge MA

Sept 2010 – Feb 2011

Volunteer mentor

Mentored one 7th grade Cambridge Public School student, weekly

RESEARCH EXPERIENCE

Massachusetts Institute of Technology, Cambridge MA

Postdoctoral Associate, Dept. of Civil and Environmental Engineering Feb 2015 – Jan 2016

- Optimized microbial growth under supercritical CO₂ for bioengineering applications involving biphasic cultivation and extraction of biomolecules including biofuels
- PI: Janelle R. Thompson; Collaborated with Chemical Engineering research scientist, Michael Timko, and Biological Engineering faculty, Kristala Prather

Ph.D. Candidate, Dept. of Civil and Environmental Engineering Sept 2008 – Jan 2015

- Isolated and characterized 7 bacterial strains capable of growth under supercritical CO₂ from three deep subsurface environments targeted for carbon sequestration
- Achieved first demonstration of growth in environments with supercritical CO₂
- Sequenced genomes of isolates for analysis of adaptations enabling growth and survival under supercritical CO₂ headspaces
- Investigated acclimation mechanisms for growth under supercritical CO₂ via proteomics and lipidomics for 2 strains
- PI: Janelle R. Thompson; Collaborated with Earth, Atmospheric and Planetary Science faculty, Roger Summons

Abbott Laboratories, Worcester MA

May 2007 – Aug 2008

Intern and Lab Technician, Molecular Pharmacology

- Separated and induced human leukocyte cell lines for autoimmune drug discovery
- Performed cell-based small molecule inhibitor assays to screen potential drug compounds for cytokine inhibition
- Supervisors: James Jakway and Romma Southwick

Worcester Polytechnic Institute, Worcester MA

Undergraduate Researcher, Dept. of Biology and Biotechnology Aug 2007 – May 2008

Major Qualify Project (Senior thesis): *Optimizing microbial ethanol: Carbon source influence and detrimental genes for ethanol production*

- Designed a colorimetric assay for ethanol detection, utilizing multiple carbon sources across 10 yeast strains
- Screened *S. cerevisiae* deletion library for genes influencing ethanol production
- Engineered higher ethanol producing mutants capable of pentose fermentation
- PI: Reeta Prusty Rao

Undergraduate Researcher, WPI and Bangkok Refugee Center Aug 2006 – Mar 2007

Interdisciplinary Qualify Project: *Improving the Bangkok Refugee Learning Center*
The BRC is a non-profit, funded by United Nations High Commissioner for Refugees, that provides education, social, and legal service for refugees in Bangkok, Thailand

- Assessed international refugee needs through focus groups and interviews with a team of 3 other WPI students while in Bangkok, Thailand

- Designed and taught a computer training course for K-12 students with a formal proposal and presentation on recommendations for how to improve the BRC's education program
- The course was implemented in the BRC's curriculum for more than 150 students

Undergraduate Researcher, Dept. of Biology and Biotechnology May 2006 – Aug 2006

- Examined artemisinin (anti-malaria drug) production from *Artemisia annua* by varying fertilizer nitrogen quantity, nitrate to ammonium ratio, and harvest age
- PI: Pamela Weathers

SERVICE EXPERIENCE

Regis College, Weston MA

Program Director for Environmental Sustainability Program Sept 2017 – June 2019

- Developed 4 new core courses for Env. Sustainability Major and Minor
- Advised students pursuing Env. Sustainability Major and Minor
- Coordinated program electives with faculty in other departments
- Engaged community organizations for student internship and service experiences
- Marketed program to prospective and current students

Environmental Sustainability Taskforce Chair Sept 2017 – June 2019

- Developed action plans to improve environmental sustainability across sectors of the college including: Governance, Operations, Curriculum, Campus Culture, and Community Service and Outreach
- Integrated faculty, staff, and students in taskforce membership
- Moderated and organized 2 panel discussions: *Revealing Hidden Facets of Environmental Sustainability* (03/28/19) and *The Challenge of Climate Change: Its Impact on Population Health* (04/24/19)
- Organized events and volunteered at Land's Sake Farm (04/22/18 & 09/27/18)
- Organized and participated in campus Earth Day events (04/23/18)
- Organized student 'Sustainability Shark Tank' event (03/28/19)

Admission, Progression, and Retention Committee Member Sept 2018 – June 2019

- Evaluated policies regarding admission, academic standing, progression, retention, and honors
- Collaborated with faculty, student support services, and athletic coaches
- Elected to standing committee by faculty peers

ePortfolio Taskforce Member Sept 2017 – June 2019

- Expanded Regis' ePortfolio to integrate all four years of the undergraduate experience, incorporating academics, experiential learning, service, co-curricular experiences, and reflections on the Regis College experience
- Participated in AAC&U High Impact Practices Institute, 6/18, Salt Lake City, UT

Faculty Search Committee Member Nov 2017 – Mar 2018

- Reviewed applicant materials, jointly interviewed candidates via phone and in person for Biology faculty position

Massachusetts Institute of Technology, Cambridge MA

MIT Outing Club Board of Directors

Sept 2012 – Apr 2018

Climbing and Mountaineering Chair, climbing and hiking leader

- Increased access and inclusion in outdoor activities by developing club policies, teaching technical skills, and leading climbing and hiking trips
- Approved and managed climbing leaders and club gear
- Coordinated courses on glacier travel and avalanche awareness

Revere High School, Revere MA

2016 & 2017

Science Fair Judge

Judged science fair presentations, half-day events

Roxbury Orchard Gardens Pilot School, Boston MA

Fall 2010 – Spring 2011

Volunteer Teacher

Designed and taught laboratory activities to middle school students, bi-weekly

African Community Education, Worcester MA

Fall 2007 – Spring 2008

Volunteer Tutor

Tutored African refugee students, grades 7 – 12, in math, science, and English, weekly

PROFESSIONAL DEVELOPMENT

Association of American Colleges & Universities, Salt Lake City UT

June 2018

Institute on High-Impact Practices and Student Success

Attended and presented at AAC&U institute on expanding Regis' ePortfolio

Regis College, Weston MA

Spring 2018

Best Practices for Online and Hybrid Teaching

Participated in 6-week online course for faculty to learn best practices for teaching online and hybrid style courses

Educational Testing Service, Kansas City MO

June 2017 & June 2018

Advanced Placement Reader, Biology

Graded AP Biology exams, 7 days for each grading

Coursera and MIT, Cambridge MA

Fall 2015

An Introduction to Evidence-Based Undergraduate STEM Teaching

Participated in 8-week online course with local meetings of MIT learning community

University of Massachusetts Amherst, Amherst MA

Sept 2015

Teaching at Teaching Intensive Institutions Workshop

Participated in one-day workshop on methods and expectations for teaching-focused institutions

PUBLICATIONS

Peet, K.C., Kodihalli R.C., Summons, R.E., Wishnok, J.S., Thompson, J.R. Changes in lipid and proteome composition accompany growth of *Bacillus* spp. under supercritical CO₂ and may promote acclimation to associated stresses. In Review at *Journal of Applied Microbiology*.

Freedman, A.J.E., **Peet, K.C.**, Boock, J.T., Penn, K., Prather, K.L.J., Thompson, J.R. (2018). Isolation, Development, and Genomic Analysis of *Bacillus megaterium* SR7 for Growth and Metabolite Production Under Supercritical Carbon Dioxide. *Frontiers in Microbiology*. 9:2152

Thompson, J.R., Freedman, A.J.E., **Peet, K.C.**, Ajo-Franklin, J. Science of Carbon Storage in Deep Saline Formations, 1st Edition. (2018) Chapter 12: Field observations, experimental studies, and thermodynamic modeling of CO₂ effects on microbial populations. *Elsevier*. ISBN: 9780128127520

Peet, K.C., Freedman, A.J.E., Hernandez, H.H., Britto, V., Boreham, C., Ajo-Franklin J.B., Thompson, J.R. (2015). Microbial growth under supercritical CO₂. *Applied and Environmental Microbiology*. 81(8): 2881-2892

Peet, K.C., Thompson, J.R. (2015). Draft genome sequences of the supercritical CO₂ tolerant bacteria *Bacillus subterraneus* MITOT1 and *Bacillus cereus* MIT0214. *Genome Announcements*. 3(2): e00140-15

PATENTS

Janelle R. Thompson, **Kyle C. Peet**, Adam J.E. Freedman, Kristala L. J. Prather, Jason T. Boock, Michael T. Timko. Microbial system for biosynthesis of natural and engineered products coupled to in situ extraction in supercritical CO₂. US Patent 20180119089. Published May 3, 2018.

PRESENTATIONS

Breen, D., Clemence, J., Conant, E., Edney, K., **Peet, K.C.**, Potts, J., Slason, E. (2018) A Four-Year ePortfolio. Presented at the Association of American Colleges & Universities June meeting. Salt Lake City, UT. 6/22/2018

Peet, K.C., Freedman, A.J.E., Boreham, C., Thompson, J.R. (2012). Isolation of microorganisms from CO₂ sequestration sites through enrichments under high pCO₂. Abstract B43B-0399. Poster. Presented at the American Geophysical Union Fall Meeting. San Francisco, CA. 12/7/2012.

Peet, K.C., Freedman, A.J.E., Hernandez, H.H., Thompson, J.R. (2011). Genomic insights into growth and survival of supercritical-CO₂ tolerant bacterium *B. cereus* MIT0214 under conditions associated with geologic carbon dioxide sequestration. Abstract B51J-0551. Poster. Presented at the American Geophysical Union Fall Meeting. San Francisco, CA. 12/8/2011.

Freedman, A.J.E., **Peet, K.C.**, Ajo-Franklin, J.B., Ajo-Franklin, C., Cappuccio, J.A., Thompson, J.R. (2011). Characterization of microbe-mineral interaction under supercritical CO₂: possible roles for bacteria during geologic carbon sequestration. Abstract B51J-0546. Poster. Presented at the American Geophysical Union Fall Meeting. San Francisco, CA 12/8/2011.

Hernandez, H.H., **Peet, K.C.**, Thompson, J.R. (2009). Microbial growth under a high-pressure CO₂ Environment. Poster. Presented at the MIT Energy Initiative Seed Fund Research Conference. Cambridge, MA 9/16/2009.

Hernandez, H.H., **Peet, K.C.**, Thompson, J.R. (2009). Microbial growth under a high-pressure CO₂ Environment. Poster. Presented at the Boston Bacterial Meeting. Cambridge, MA 6/19/2009.

Peet, K.C., Prusty Rao, R. (2008). Optimizing microbial ethanol: carbon source influence and detrimental genes for ethanol production. Poster. Presented at the conclusion of WPI's Major Qualify Project. Worcester, Ma. 4/23/2008.

Peet, K.C., Jajosky, R.P., Tarbet, A.J., Wang, B., Gibson, D. (2007). How bad can it get? Comparing buffers and osmolarity for TEM fixation. Poster. Presented at the New England Society for Microscopy Conference. Woods Hole, Falmouth, MA 5/4/2007. 2nd Place in Poster competition.

Peet, K.C., McHugh, S., Rank, C., Vasudevan, R., (2007). Improving the Bangkok Refugee Learning Center: an assessment of the current program and the development of a computer literacy course. Oral Presentation. Presented at the conclusion of WPI's Interdisciplinary Qualifying Project. Bangkok, Thailand. 2/28/2007.