

Curriculum Vitae

Gregory C. Palmer, Ph.D.

Advanced Lecturer
School of Environmental Sustainability
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Education

Ph.D. Cell and Molecular Biology, University of Texas at Austin, 2012
Graduate Research Assistant, Advisor: Professor Marvin Whiteley, Molecular
Biosciences Department (Currently at Georgia Institute of Technology)

B.S. Cellular and Molecular Biology and Political Science, University of Michigan Ann Arbor, 2007
Undergraduate Research Assistant, Advisor: Associate Professor Ruthann Nichols,
Biological Chemistry Department

Teaching Experience

Advanced Lecturer, Lecturer, or Instructor, Loyola University Chicago

August 2018-Present

Advanced Lecturer:

Fall 2024: ENVS 101 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Spring 2024: ENVS 238 Foundations of Environmental Science Lab

Description: A lab course designed to introduce school of environmental sustainability non-BS majors to lab safety, basic lab techniques such as use of balances and microscopes, data analysis, and the application of these techniques to the study of environmental science.

Spring 2024: ENVS 101 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Fall 2023: ENVS 101 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Fall 2023: ENVS 275 Chemistry of the Environment Lab

Description: A lab course designed to introduce environmental science majors to lab safety as well as basic lab techniques such as use of balances and microscopes, data analysis, and the application of these techniques to the study of environmental science.

Lecturer:

Spring 2023: ENVS 238 Foundations of Environmental Science Lab

Description: A lab course designed to introduce school of environmental sustainability non-BS majors to lab safety, basic lab techniques such as use of balances and microscopes, data analysis, and the application of these techniques to the study of environmental science.

Spring 2023: ENVS 101 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Fall 2022: ENVS 101 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Spring 2022: ENVS 238 Foundations of Environmental Science Lab

Description: A lab course designed to introduce school of environmental sustainability non-BS majors to lab safety, basic lab techniques such as use of balances and microscopes, data analysis, and the application of these techniques to the study of environmental science.

Spring 2022: ENVS 101 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Fall 2021: ENVS 350b Solutions to Environmental Problems (STEP): Biogas

Description: Interdisciplinary active learning course where students work in research teams to produce genuine solutions to a significant environmental problem. This iteration of the course involves multiple research groups investigating ways to optimize anaerobic digestion to mitigate organic waste and contribute to campus energy needs.

Fall 2021: ENVS 275 Chemistry of the Environment Lab

Description: A lab course designed to introduce environmental science majors to lab safety as well as basic lab techniques such as use of balances and microscopes, data analysis, and the application of these techniques to the study of environmental science.

Spring 2021: ENVS 238 Foundations of Environmental Science Lab

Description: A lab course designed to introduce school of environmental sustainability non-BS majors to lab safety, basic lab techniques such as use of balances and microscopes, data analysis, and the application of these techniques to the study of environmental science.

Spring 2021: ENVS 101 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Fall 2020: ENVS 101 (formerly UCSF 137) The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Summer 2020: UCSF 137 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Spring 2020: ENVS 350b Solutions to Environmental Problems (STEP): Biogas

Description: Interdisciplinary active learning course where students work in research teams to produce genuine solutions to a significant environmental problem. This iteration of the course involves six research groups determining the feasibility of utilizing anaerobic digestion to mitigate organic waste and contribute to campus energy needs by producing biogas (methane).

Spring 2020: UCSF 137 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Fall 2019: ENVS 350b Solutions to Environmental Problems (STEP): Biogas

Description: Interdisciplinary active learning course where students work in research teams to produce genuine solutions to a significant environmental problem. This iteration of the course involves six research groups determining the feasibility of utilizing anaerobic digestion to mitigate organic waste and contribute to campus energy needs by producing biogas (methane).

Fall 2019: UCSF 137 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Instructor:

Spring 2019: UCSF 137 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Fall 2018: UCSF 137 The Scientific Basis of Environmental Issues

Description: Introductory course for non-science majors on the basic science concepts underlying environmental issues. Topics covered include biodiversity, human population growth, water quality, agriculture and food ecology, energy, and climate change.

Clinical Assistant Professor, Research Educator, or Lecturer University of Texas at Austin
August 2012-August 2018:

Dell Medical School Curriculum Development Consultant, Teaching Assistant, and Instructor:

Spring 2018: Foundations of Disease

Description: Co-instructor of record for second iteration of the Dell Medical School course on Microbiology, Immunology, and Infectious Disease for first year medical students.

Spring 2017: Foundations of Disease

Description: Teaching Assistant for first iteration of the Dell Medical School course on Microbiology, Immunology, and Infectious Disease for first year medical students. Curriculum development occurred over the summer and fall of 2016 in preparation for the course to be taught in January 2017.

College of Natural Sciences Primary Instructor:

Spring 2018: CH 204 Freshman Research Experience

Description: Introductory Biology/Chemistry laboratory course for students in the Freshman Research Initiative program. The course is designed to teach freshman students the technical and critical thinking skills required to conduct independent, peer-reviewed research.

Fall 2017: UGS 018 First Year Interest Group

Description: Seminar course for small group of first year students. Topics relevant to first year students transitioning to college were discussed.

Fall 2017: BIO 377, CH 369K Undergraduate Research

Description: Upper division laboratory course for students in the Freshman Research Initiative program. The course allows students who completed an introductory research course to continue to conduct independent, peer-reviewed research.

Spring 2017: NSC 209 Science Olympiad Near-Peer Mentoring

Description: A seminar course for developing students' peer mentoring skills in the context of mentoring middle and high school Science Olympiad teams. The class met for a weekly seminar with discussion topics relevant to peer mentoring, and the students were required to complete 3 hours per week of logged mentoring activities.

Spring 2017: BIO 206L/170C, CH 204/108 Freshman Research Experience

Description: Introductory Biology/Chemistry laboratory course for students in the Freshman Research Initiative program. The course is designed to teach freshman students the technical and critical thinking skills required to conduct independent, peer-reviewed research.

Fall 2016: UGS 018 First Year Interest Group

Description: Seminar course for small group of first year students. Topics relevant to first year students transitioning to college were discussed.

Fall 2016: NSC 209 Science Olympiad Near-Peer Mentoring

Description: A seminar course for developing students' peer mentoring skills in the context of mentoring middle and high school Science Olympiad teams. The class met for a weekly seminar with discussion topics relevant to peer mentoring, and the students were required to complete 3 hours per week of logged mentoring activities.

Fall 2016: BIO 377, CH 369K Undergraduate Research

Description: Upper division laboratory course for students in the Freshman Research Initiative program. The course allows students who completed an introductory research course to continue to conduct independent, peer-reviewed research.

Spring 2016: NSC 209 Science Olympiad Near-Peer Mentoring

Description: A seminar course for developing students' peer mentoring skills in the context of mentoring middle and high school Science Olympiad teams. The class met for a weekly seminar with discussion topics relevant to peer mentoring, and the students were required to complete 3 hours per week of logged mentoring activities.

Spring 2016: BIO 206L/170C, CH 204/108 Freshman Research Experience

Description: Introductory Biology/Chemistry laboratory course for students in the Freshman Research Initiative program. The course is designed to teach freshman students the technical and critical thinking skills required to conduct independent, peer-reviewed research.

Fall 2015: BIO 377, CH 369K Undergraduate Research

Description: Upper division laboratory course for students in the Freshman Research Initiative program. The course allows students who completed an introductory research course to continue to conduct independent, peer-reviewed research.

Spring 2015: BIO 206L/170C, CH 204/108 Freshman Research Experience

Description: Introductory Biology/Chemistry laboratory course for students in the Freshman Research Initiative program. The course is designed to teach freshman students the technical and critical thinking skills required to conduct independent, peer-reviewed research.

Fall 2014: BIO 377, CH 369K Undergraduate Research

Description: Upper division laboratory course for students in the Freshman Research Initiative program. The course allows students who completed an introductory research course to continue to conduct independent, peer-reviewed research.

Spring 2014: BIO 206L/170C, CH 204/108 Freshman Research Experience

Description: Introductory Biology/Chemistry laboratory course for students in the Freshman Research Initiative program. The course is designed to teach freshman students the technical and critical thinking skills required to conduct independent, peer-reviewed research.

Fall 2013: BIO 377, CH 369K Undergraduate Research

Description: Upper division laboratory course for students in the Freshman Research Initiative program. The course allows students who completed an introductory research course to continue to conduct independent, peer-reviewed research.

Spring 2013: BIO 206L/170C, CH 204/108 Freshman Research Experience

Description: Introductory Biology/Chemistry laboratory course for students in the Freshman Research Initiative program. The course is designed to teach freshman students the technical and critical thinking skills required to conduct independent, peer-reviewed research.

Fall 2012: BIO 344 Molecular Biology

Description: Advanced course in the molecular basis of cellular process. Topics include gene structure and function, DNA replication, RNA and protein synthesis, Regulation of gene expression, recombinant DNA technology, and genomics.

College of Natural Sciences Co-Instructor:

Fall 2014: BIO 326R General Microbiology: Cell Structure and Genetics

Description: Large, 300 student introductory microbiology survey course covering microbial cell structure, growth, basic physiology, and genetics. Co-instructor duties include developing discussion section content, exams and grading, and guest lecturing.

Fall 2012: NSC 110 Health Science Scholars Seminar

Description: 1 credit seminar for Honors students interested in Health Sciences professions. Students lead group discussions regarding topics in microbial pathogenicity and infectious

disease including virulence factor production, cell-to-cell communication, vaccines, and antibiotic resistance.

Teaching Assistant University of Texas at Austin August 2010-June 2012:

Summer 2012 BIO F344 Molecular Biology

Description: Advanced course in the molecular basis of cellular process. Topics include gene structure and function, DNA replication, RNA and protein synthesis, Regulation of gene expression, recombinant DNA technology, and genomics.

Spring 2012 BIO 126L General Microbiology Lab

Description: Lab sessions covering microbiology techniques and concepts including isolation, biochemical and molecular characterization, and genetics.

Spring 2011 BIO 326M Introductory Medical Microbiology and Immunology

Description: Introductory microbiology course for students pursuing health professions covering topics including microbial physiology, genetics, and immunology.

Fall 2010 BIO 301L From Molecules to Organisms

Description: Introductory course in Biology for non-major students covering biological macromolecules, cell structure and function, and animal diversity.

Grading only:

Fall 2011 BIO 326R General Microbiology: Microbial Cell Structure and Genetics

Description: Introductory microbiology covering topics including microbial physiology, genetics, and diversity with an emphasis on experimental approaches.

Guest Lectures:

Summer 2023 Loyola University Chicago 280/286s: Principles of Ecology Lecture and Lab

Fall 2022 Loyola University Chicago ENVS 200 Environmental Careers and Professional Skills

Summer 2022 Loyola University Chicago ENVS 326/426: Agroecosystems

Fall 2016 UT-Austin BIO 326R General Microbiology: Microbial Cell Structure and Genetics

Spring 2012 Texas State University BIO 4447 Microbial Physiology and Genetics

Spring 2010 UT-Austin BIO 393 Bacterial Signal Transduction

Awards

Undergraduate Research Mentee Awards:

2024 Connor Olds Baum Family Undergraduate Research Fellowship

2022 Brennan McDonald Outstanding Undergraduate Research Award Loyola Undergraduate Research and Engagement Symposium

2021 Brennan McDonald Loyola University Chicago Provost's Undergraduate Research Fellowship

2020 Brennan McDonald Loyola University Chicago Institute of Environmental Sustainability Undergraduate Research Fellowship

2016 Luke Pickeril Best Student Poster ASM Branch Meeting, Dallas, TX

Palmer Awards:

2011 University of Texas at Austin Graduate School Bruton Continuing Fellowship

2011 University of Texas at Austin School of Biological Sciences Teaching Assistant Award nominee

2009 Wind River Conference on Prokaryotic Biology Travel Award

Publications

Steinel, N., **Palmer, G. C.**, Nowicki, E., Lee, E., Nelson, E., Whiteley, M., and Lee, M. W. 2019. Integration of Microbiology, Pharmacology, Immunology, and Infectious Disease Using Active Teaching and Self-Directed Learning. *Medical Science Educator*. 29:315-324.

Corwin, L. A., Runyon, C. R., Ghanem, E., Sandy, M., Clark, G., **Palmer, G. C.**, Reichler, S., Rodenbusch, S. E., Dolan, E. L. 2018. Effects of Discovery, Iteration, and Collaboration in Laboratory Courses on Undergraduates' Research Career Intentions Fully Mediated by Student Ownership. *CBE Life Sciences Education*. 17:ar20.

Leander M, Heimonen J, Brocke T, Rasmussen M, Bass C, **Palmer G**, Egle J, Mispelon M, Berry K, Nichols R. 2016. The 5-amino acid N-terminal extension of non-sulfated drosulfakinin II is a unique target to generate novel agonists. *Peptides*. 83:49-56.

Turner, K. H., Wessel, A. K., **Palmer, G. C.**, Murray, J. L., Whiteley, M. 2015. Essential genome of *Pseudomonas aeruginosa* in cystic fibrosis sputum. *Proceedings of the National Academy of Sciences USA*. 112:4110-4115.

Palmer, G. C. and Whiteley, M. 2015. Metabolism and Pathogenicity of *Pseudomonas aeruginosa* Infections in the Lungs of Individuals with Cystic Fibrosis. *Microbiology Spectrum*. 3:185–213.

Palmer, G. C., Jorth, P. A., and Whiteley, M. 2013. The role of two *Pseudomonas aeruginosa* anthranilate synthases in tryptophan and quorum signal production. *Microbiology*. 159:959-969.

Wessel, A. K.*, **Palmer, G. C.***, and Whiteley, M. 2012. Regulation of vesicle formation. In: *Regulation of Bacterial Virulence*. ASM Press, Washington, DC.

Palmer, G. C., Schertzer, J. W., Mashburn-Warren, L., and Whiteley, M. 2011. Quantifying *Pseudomonas aeruginosa* quinolones and examining their interactions with lipids. *Methods in Molecular Biology*. 692:207-217.

Ng, D. W., Zhang, C., Miller, M., **Palmer, G.**, Whiteley, M., Tholl, D., and Chen, Z.J. 2011. cis- and trans-Regulation of miR163 and target genes confers natural variation of secondary metabolites in two *Arabidopsis* species and their allopolyploids. *Plant Cell*. 23:1729-1740.

Palmer, G. C.*, Palmer, K. L.*, Jorth, P. A., and Whiteley, M. 2010. Characterization of the *Pseudomonas aeruginosa* transcriptional response to phenylalanine and tyrosine. *The Journal of Bacteriology*. 192: 2722-2728.

Nichols, R., Egle, J. P., Langan, N. R., and **Palmer, G. C.** 2008. The different effects of structurally related sulfakinins on *Drosophila melanogaster* odor preference and locomotion suggest involvement of distinct mechanisms. *Peptides*. 29:2128-2135.

Palmer, G. C., Tran, T., Duttlinger, A., Nichols, R. 2007. The drosulfakinin 0 (DSK 0) peptide encoded in the conserved Dsk gene affects adult *Drosophila melanogaster* crop contractions. *Journal of Insect Physiology*. 53:1125-1133.

* Indicates authors contributed equally

Pedagogical/Research Presentations

Loyola University Chicago Focus on Teaching and Learning, Chicago, Illinois, January 12, 2022
Workshop Title: Facilitating Course-based Undergraduate Research Experiences with Peer Mentorship

Michigan Science Olympiad State Coaches Clinic, Virtual, November 6, 2021
Workshop title: Bio Process Lab

National Science Olympiad Summer Institute, Virtual, July 12-16, 2021
Workshop title: Bio Process Lab

Michigan Science Olympiad State Coaches Clinic, Virtual, December 5, 2020
Workshop Title: Designer Genes

Michigan Science Olympiad State Coaches Clinic, East Lansing, Michigan, December 1, 2018
Workshop Titles: Anatomy and Physiology, Disease Detectives, Designer Genes, Protein Modeling

ASM Branch Meeting Texas Branch, Dallas, Texas, November 11-13, 2016
Talk title: The University of Texas at Austin Freshman Research Initiative: Antibiotics Discovery and Function Stream

National Academies Special Topics Summer Institute on Course-based Undergraduate Research Experiences, Austin, Texas, June 26-June 30, 2016
Summer Institute Organizing Committee member, Facilitator for session on "Next Steps" in planning research-based courses

Freshman Research Initiative Conference, Austin, Texas March 2-4, 2016
Organizing Committee Member, Facilitator for session on student assessment in FRI courses

National Academies Special Topics Summer Institute on Course-based Undergraduate Research Experiences, Austin, Texas, June 28-July 2, 2015
Summer Institute Organizing Committee member, Facilitator for session on assessing student progress research-based courses

ASM Conference for Undergraduate Educators, Austin, Texas, May 28-31, 2015
Microbrew talk title: Research proposals as tools to develop first year undergraduate's research projects.

Freshman Research Initiative Conference, Austin, Texas March 26-28, 2014

Panel Discussion Participant: The Research Educator: A Vehicle for Professional Development, Inspiring Undergraduates to Effectively Communicate Science, STEM Outreach

ASM Branch Meeting Texas Branch, San Marcos, Texas, October 28-30, 2010
Talk title: Characterization of the *Pseudomonas aeruginosa* response to aromatic amino acids.

Wind River Conference on Prokaryotic Biology, Estes Park, Colorado, June 3-7, 2009
Talk title: Phenylalanine ammonia lyase: a nutritional approach to therapeutic development

ASM Branch Meeting Texas/South Central Branches, Austin, Texas, November 9-11, 2008
Poster title: Phenylalanine ammonia lyase: a nutritional approach to therapeutic development

Service and Outreach

Loyola University Chicago

ENVS 101 Coordinator 2021-present.

Dual Credit Program Faculty Mentor 2020-present.

FYRE student research mentor 2021.

Faculty advisor to Students for Sustainable Energy through Anaerobic Digestion registered student organization 2020-present.

Faculty mentor to Queer Undergraduates of Empowerment, Support, and Triumph (QUEST) 2020-21, 2022-present.

Member of Academic Technology Committee member 2020-2022.

Evaluator for Undergraduate Research and Engagement Symposium 2019-Present

Member of Institute of Environmental Sustainability committee on diversity, equity, and inclusion 2019-2020.

University of Texas at Austin

First Year Interest Group facilitator 2016-2018

Dell Medical School Health Sciences Summer Camp microbiology session co-planner and facilitator Summer 2016-2018

TIP scholar academic coach Spring 2016

Organizing Committee member and Chair of Annual Molecular Biosciences Students Association Undergraduate Research Symposium 2015-2017

Regional Science Olympiad Tournament Director 2012-2018

UTeach PREP camp mentor 2014-2018

Shadow a Scientist outreach program for middle school students mentor 2014-2018

Co-advisor to American Society for Microbiology student chapter 2014-2018

Summer Research Academy for high school students mentor 2013-2018

Mentor to nationally competitive high school Science Olympiad team at Liberal Arts and Science Academy, Austin, TX 2011-2014

National Service and Journal Reviews

Member of Science Olympiad National Life Sciences Rules Committee 2012-present

Journal article *ad hoc* reviewer for *Science Translational Medicine*, *FEMS Microbiology Letters*, 2019-present

Cystic Fibrosis Foundation Great Strides Fundraiser participant 2008-2012