

**JEFFREY P. OSBORNE**

Department of Chemistry & Physics  
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**ACADEMIC***Appointments*

Professor of Chemistry, Manchester University	5/18–present
Associate Professor of Chemistry (tenured), Manchester University	5/10–4/18
Assistant Professor of Chemistry, Manchester University (formerly Manchester College)	8/04–4/10

*Courses Taught*

<u>Recent:</u> First Year Success Seminar, Chemical Science, Introduction to Inorganic Chemistry, General Chemistry I and Lab, General Chemistry II and Lab, Biochemistry I and Lab, Biochemistry II, Medical Practicum, Global Disease, Health Science Practicum, Health Science Internship, Chemistry Research, Medical Laboratory Science Clinical, Senior Seminar.	8/04–present
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Older: Introduction to Inorganic Chemistry Lab, Introduction to Organic Chemistry Lab, Environmental Chemistry, Organic Chemistry I and Lab, Physical Chemistry II and Lab, Instrumental Analysis Lab, Biochemistry II Lab, Special Problems, Intensive Studies in Spanish, First Year Seminar: Energy and Society, First Year Experience, My Manchester Experience, Seminar in Global Health.

*Administrative*

Founding Program Co-Director of B.S. in Biology-Chemistry/M.S. in PGx 4 Yrs Program	12/26–present
Program Director of Medical Laboratory Science (formerly Medical Technology)	10/24–present
Founded Pre-Pharmacy Associate of Science	11/22–present
Founded Biology-Chemistry Education Bachelor of Science	11/19–present
Program Director of Biology-Chemistry	7/17–present
Program Director of Medical Practicum	8/16–present
Founding Program Co-Director of Population Health	3/20–5/24
Founding Program Director of Global Health	8/18–5/23
Coordinator of Pre-Pharmacy	7/17–5/23

**RESEARCH***Principal Investigator, Manchester University*

Developing web applications for teaching and research.	8/25–present
Process Oriented Guided Inquiry Learning activities.	8/11–present
Health care development in indigenous, rural, Central America MedicalPracticum.manchester.edu	6/07–present
Compiling biocatalysis/biodegradation database pathways.	4/05–present
Biodegradation of persistent hydrocarbons and pharmaceuticals.	2/05–present
Converting cafeteria waste vegetable oil to biodiesel for campus vehicles.	9/05–6/07

*Postdoctoral Research Associate, University of Minnesota*

Laboratory of Lawrence P. Wackett. Biodegradation of pollutants using naturally occurring and genetically modified bacteria.	7/00–6/04
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*Graduate Research Assistant, University of Illinois at Urbana-Champaign*

Laboratory of Robert B. Gennis. Structure and function relationships of cytochrome oxidase membrane proteins in respiratory chains.	1/92–12/98
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**EDUCATION**

Ph.D.	Biochemistry	University of Illinois at Urbana-Champaign	1999
B.A.	Chemistry, Biology	Goshen College	1992
A.A.	Liberal Arts	Hesston College	1988

**GRANTS**

<u>Total</u>			\$71,950
22.	<i>Manchester University Faculty Research and Creative Endeavor Grant</i> “Creation and Implementation of JavaScript Webpage Using Application Programming Interface to Access enviPath.org Biodegradation Pathway Data	\$2,000	2025
21.	<i>Manchester University Faculty-Student Summer Research Program</i> “Towards Polystyrene Biodegradation: Development of Assays for 1,3-Diphenylpropane Metabolism”	\$8,000	2024
20.	<i>Manchester University Faculty-Student Summer Research Program</i> “Characterization of Styrene Oligomer Novel Biodegradation Pathways”	\$8,000	2023
19.	<i>Manchester University Faculty-Research and Creative Endeavor Grant</i> “Creation and Implementation of NASC-450 Senior Seminar, a High-Impact, Capstone Course”	\$2,000	2023
18.	<i>Manchester University Faculty-Student Summer Research Program</i> “Characterization of Styrene Oligomer, Ritalinic Acid and other Novel Biodegradation Pathways”	\$8,000	2022
17.	<i>Manchester University Faculty Research and Creative Endeavor Grant</i> “Facilitation of Timetabling Software Implementation for Course Scheduling at Manchester University”	\$2,000	2022
16.	<i>Manchester University Peace Studies/Conflict Resolution Grant</i> “Improving Relationships and Cooperation between the Medical Practicum and the Alto Wangki-Bocay Mayangna”	\$1,500	2017
15.	<i>H.C. Gemmer Family Christian Foundation</i> “Medicines and Medical/Dental Supplies for the 2017 Manchester University Medical Practicum”	\$3,000	2016
14.	<i>H.C. Gemmer Family Christian Foundation</i> “Medicines and Medical Supplies for the 2015 Manchester University Medical Practicum”	\$2,600	2014
13.	<i>Manchester University Peace Studies/Conflict Resolution Secrist Funds</i> “Improving Relationships and Cooperation between the Medical Practicum and the Alto Wangki/Bocay People”	\$1,500	2014
12.	<i>Manchester College Peace Studies/Conflict Resolution Secrist Funds</i> “Relationship Building and Multilateral Organization in Río Coco, Nicaragua Communities for January 2013 Medical Practicum”	\$1,500	2012
11.	<i>Manchester College Peace Studies/Conflict Resolution Secrist Funds</i> “Relationship Building and Multilateral Organization in Río Coco, Nicaragua Communities for January 2011 Medical Practicum”	\$1,500	2010
10.	<i>Manchester College Faculty Research and Artistic Endeavor</i> “Researching the January 2010 Medical Practicum Site in Nicaragua”	\$750	2009
9.	<i>H.C. Gemmer Family Christian Foundation</i> “Medicines for Manchester College Medical Practicum”	\$1,500	2008
8.	<i>Plowshares</i> “Spanish Language Study and Visiting Potential Medical Practicum Sites in Nicaragua”	\$2,500	2008
7.	<i>Plowshares</i> “Language Study and Medical Practicum Site Selection in Nicaragua”	\$1,325	2007

6. <i>Manchester College Summer Research Program</i> “Characterization of Styrene Oligomer, Ritalinic Acid and other Novel Biodegradation Pathways”	\$8,600	2007
5. <i>Indiana Academy of Science Senior Grant</i> “Biodegradation of Styrene Oligomers”	\$3,000	2006
4. <i>Manchester College Summer Research Program</i> “Identification of Novel Biodegradation Pathways”	\$9,475	2006
3. <i>Chartwells Education Dining Services</i> “Biodiesel from Waste Vegetable Oil”	\$600	2005
2. <i>Plowshares Faculty Development</i> “Production of Methane from Biomass”	\$2,000	2005
1. <i>The Dorothy and Moses Passer Education Fund</i> “Attend Conference on Chemistry for Non-Science Majors”	\$600	2004

## DISTINCTIONS

11. Guatemala Family Development Board	7/23–present
10. enviPath International Scientific Advisory Board	7/19–present
9. University of Saint Francis Department of Physician Assistant Studies Advisory Committee	5/18–5/23
8. Swiss Federal Institute of Aquatic Science and Technology (EAWAG) Biocatalysis/Biodegradation Database International Scientific Advisory Board	7/14–7/19
7. Pharmacogenomics Certification through RxGenomix Training Program	7/18
6. Recognition by the Municipal Government of Wiwilí, Nicaragua for “Su honorable y valioso y humanitario apoyo a la salud de nuestras comunidades indígenas con el fin de mejorar las condiciones de vida y restitución de derechos” [“Your honorable and valuable and humanitarian support to the health of our indigenous communities with the goal of improving the conditions of life and restitution of rights.”]	1/14
5. University of Minnesota Biocatalysis/Biodegradation Database International Scientific Advisory Board	5/12 – 6/14
4. Honorary Member of Alpha Mu Gamma Honor Society (Foreign Language)	10/10
3. Dean’s Award for Excellence	5/09
2. Recognition by the Sistema Local de Atención Integral en Salud [System of Locally Integrated Health Service] of Nueva Segovia department, Nicaragua for “Su labor humanitaria de llevar la salud y bienestar social al pueblo de Ciudad Antigua, Nicaragua y apoyar los programas de nuestro gobierno.” [“Your humanitarian work to bring health and social welfare to the people of Ciudad Antigua, Nicaragua and support the programs of our government.”]	1/08
1. Commendation by the Lieutenant Governor of Indiana for “Recent work you have undertaken to make Manchester College more energy efficient.”	2/07

## SCIENTIFIC WEB PUBLICATIONS

- Osborne, J. P. and Planer, J. (2012) “Nitrate (Anaerobic) Pathway Map.” Available from EAWAG Biocatalysis/Biodegradation Database: [http://eawag-bbd.ethz.ch/nit/nit\\_map.html](http://eawag-bbd.ethz.ch/nit/nit_map.html).
- Sanchez, E., Cullen, M., and Osborne, J. P. (2012) “Iminodisuccinate Pathway Map.” Available from EAWAG Biocatalysis/Biodegradation Database: [http://eawag-bbd.ethz.ch/ids/ids\\_map.html](http://eawag-bbd.ethz.ch/ids/ids_map.html).
- Burkett, A., and Osborne, J. P. (2012) “1,5-Anhydrofructose (Fungal) Pathway Map.” Available from EAWAG Biocatalysis/Biodegradation Database: [http://eawag-bbd.ethz.ch/stc2/stc2\\_map.html](http://eawag-bbd.ethz.ch/stc2/stc2_map.html).
- Burkett, A., and Osborne, J. P. (2012) “Starch Oligomer Pathway Map.” Available from EAWAG Biocatalysis/Biodegradation Database: [http://eawag-bbd.ethz.ch/stc/stc\\_map.html](http://eawag-bbd.ethz.ch/stc/stc_map.html).
- Collins, L., and Osborne, J. P. (2012) “Cocaine Pathway Map.” Available from EAWAG Biocatalysis/Biodegradation Database: [http://eawag-bbd.ethz.ch/coc/coc\\_map.html](http://eawag-bbd.ethz.ch/coc/coc_map.html).
- Mills-Groninger, F., Carpenter, M., and Osborne, J. P. (2011) “Cypermethrin Pathway Map.” Available from EAWAG Biocatalysis/Biodegradation Database: [http://eawag-bbd.ethz.ch/cyp/cyp\\_map.html](http://eawag-bbd.ethz.ch/cyp/cyp_map.html).
- Johnson, W., and Osborne, J. P. (2011) “Permethrin Pathway Map.” Available from EAWAG Biocatalysis/Biodegradation Database: [http://eawag-bbd.ethz.ch/per/per\\_map.html](http://eawag-bbd.ethz.ch/per/per_map.html).

**BOOKS AND CHAPTERS**

2. Osborne, J. P., (1999) *Structure and Function Relationships in Cytochrome  $bo_3$  Oxidase and Cytochrome  $bd-I$  Oxidase from Escherichia coli*. Ph.D. Dissertation, University of Illinois at Urbana-Champaign. UMI, Ann Arbor (AAT 9944956).
1. Osborne, J. P., Musser, S. M., Schultz, B. E., Edmondson, D. E., Chan, S. I., and Gennis, R. B. (1998) "Rapid Formation of a Ubisemiquinone Species Upon Oxidation of Quinol by the Cytochrome  $bo_3$  from *Escherichia coli*" in *Oxygen Homeostasis and Its Dynamics* (Ishimura, Y., Shimada, H., & Suematsu, M., Eds.) pp 33-39, Springer-Verlag, Tokyo.

**PEER-REVIEWED ARTICLES**

18. Seffernick, J. L., Aleem, A., Osborne, J. P., Johnson, G., Sadowsky, M. J., and Wackett, L. P. (2007) "Hydroxyatrazine N-ethylaminohydrolase (AtzB): an amidohydrolase superfamily enzyme catalyzing deamination and dechlorination" *Journal of Bacteriology*, 189(19), 6989-6997.
17. Yang, K., Zhang, J., Vakkasoglu, A., Hielscheer, R., Osborne, J. P., Hemp, J., Miyoshi, M., Hellwig, P. and Gennis, R. (2007) "Glutamate 107 in Subunit I of the Cytochrome  $bd$  Quinol Oxidase from *Escherichia coli* is Protonated and is Near the Heme d/Heme  $b_{595}$  Binuclear Center" *Biochemistry*, 46(11), 3270-3278.
16. Brim, H., Osborne, J. P., Kostandarithes, H. M., Fredrickson, J. K., Wackett, L. P. and Daly, M. J. (2006) "*Deinococcus radiodurans* Engineered for Complete Toluene Degradation Facilitates Cr(VI) Reduction" *Microbiology* 152(8), 2469-2477.
15. Zhang, J., Hellwig, P., Osborne, J. P., Gennis R. B. (2004). "Arginine-391 in Subunit I of the Cytochrome  $bd$  Quinol Oxidase from *E. coli* Stabilizes the Reduced Form of the Hemes and Is Essential for Quinol Oxidase Activity." *Journal of Biological Chemistry*, 279(52), 53980-53987.
14. Zhang, J, Osborne, J. P., Gennis, R. B., Wang, X. (2004) "Proton NMR Study of the Heme Environment in Bacterial Quinol Oxidases." *Archives of Biochemistry and Biophysics*, 421(2), 186-191.
13. Seffernick, J. L., McTavish, H., Osborne, J. P., de Souza, M. L., Sadowsky, M. J., Wackett, L. P. (2002) "Atrazine Chlorohydrolase from *Pseudomonas* Sp. Strain ADP Is a Metalloenzyme." *Biochemistry*, 41, 14430-14437.
12. Shapir, N., Osborne, J. P., Johnson, G., Sadowsky, M. J., and Wackett, L. P. (2002) "Purification, Substrate Range, and Metal Center of AtzC: the N-Isopropylammelide Aminohydrolase Involved in Bacterial Atrazine Metabolism." *Journal of Bacteriology*, 184, 5376-5384.
11. Zhang, J., Hellwig, P., Osborne, J. P., Huang, H., Moeenne-Loccoz, P., Konstantinov, A. A., Gennis, R. B. (2001) "Site-Directed Mutation of the Highly Conserved Region near the Q-Loop of the Cytochrome  $bd$  Quinol Oxidase from *Escherichia coli* Specifically Perturbs Heme  $b_{595}$ ." *Biochemistry*, 40, 8548-8556.
10. Veselov, A. V., Osborne, J. P., Gennis, R. B., Scholes, C. P. (2000) "Q-Band ENDOR (Electron Nuclear Double Resonance) of the Heme  $o_3$  Liganding Environment at the Binuclear Center in Cytochrome  $bo_3$  from *Escherichia coli*." *Journal of the American Chemical Society*, 122, 8712-8716.
9. Veselov, A. V., Osborne, J. P., Gennis, R. B. and Scholes, C. P. (2000) "Q-Band ENDOR (Electron Nuclear Double Resonance) of the High-Affinity Ubisemiquinone Center in Cytochrome  $bo_3$  from *Escherichia coli*." *Biochemistry*, 39, 3169-3175.
8. Musatov, A., Ortega-Lopez, J., Demler, B., Osborne, J. P., Gennis, R. B., Robinson, N. C. (1999) "Detergent-Solubilized *Escherichia coli* Cytochrome  $bo_3$  Ubiquinol Oxidase: A Monomeric, Not a Dimeric Complex." *FEBS Letters*, 457(1), 153-156.
7. Osborne, J. P., Cospers, N. J., Stålhandske, C. M. V., Scott, R. A., Alben, J. O. and Gennis, R. B. (1999) "Cu XAS Shows a Change in Ligation of  $Cu_B$  Upon Reduction of Cytochrome  $bo_3$  Oxidase from *Escherichia coli*." *Biochemistry*, 38, 4526-4532.
6. Osborne, J. P. and Gennis, R. B. (1999) "Sequence Analysis of Cytochrome  $bd$  Oxidase Suggests a Revised Topology for Subunit I." *Biochimica et Biophysica Acta*, 1410, 32-50.
5. Borisov, V., Arutyunyan, A. M., Osborne, J. P., Gennis, R. B. and Konstantinov, A. A. (1999) "Magnetic Circular Dichroism Used to Examine the Interaction of *Escherichia coli* Cytochrome  $bd$  with Ligands." *Biochemistry*, 38, 740-750.

4. Larsen, R. W., Osborne, J., Langley, T., and Gennis, R. B. (1998) "Volume Changes Associated with CO Photodissociation from Fully Reduced Cytochrome *bo*<sub>3</sub> from *Escherichia coli*." *Journal of the American Chemical Society*, 120, 8887-8888.
3. Watmough, N. J., Katsonouri, A., Little, R. H., Osborne, J. P., Furlong-Nickels, E., Gennis, R. B., Brittain, T., and Greenwood, C. (1997) "A Conserved Glutamic Acid in Helix VI of Cytochrome *bo*<sub>3</sub> Influences a Key Step in Oxygen Reduction." *Biochemistry*, 36, 13736-13742.
2. Sun, J., Kahlow, M. A., Kaysser, T. M., Osborne, J. P., Hill, J. J., Rohlf, R. J., Hille, R., Gennis, R. B., and Loehr, T. M. (1996) "Resonance Raman Spectroscopic Identification of a Histidine Ligand of *b*<sub>595</sub> and the Nature of the Ligation of Chlorin *d* in the Fully Reduced *Escherichia coli* Cytochrome *bd* Oxidase." *Biochemistry*, 35, 2403-2412.
1. Sun, J., Osborne, J. P., Kahlow, M. A., Kaysser, T. M., Hill, J. J., Gennis, R. B., and Loehr, T. M. (1995) "Resonance Raman Studies of *Escherichia coli* Cytochrome *bd* Oxidase. Selective Enhancement of the Three Heme Chromophores of the 'As-Isolated' Enzyme and Characterization of the Cyanide Adduct." *Biochemistry*, 34, 12144-12151. Correction: *Biochemistry* 35, 666 (1996).

## STUDENT RESEARCH

52. Margaret Slover. Fall 2024 (informal) and Spring 2025 (1 credit hour). "Biodegradation of Styrene Telomers".
51. Emily Burdick. Spring 2024 – Spring 2025. Honors Thesis Co-Advisor. "RITA as a Potential Glioblastoma Prevention Drug: Efficacy and Mechanism in Relation to p53 Status".
50. Bradley Walling. Summer 2024 (10 weeks). "Biodegradation of 1,3-Diphenylpropane".
49. Margaret Slover. Summer 2024 (10 weeks). "Biodegradation of Styrene Telomers".
48. Bradley Walling. Summer 2023 (10 weeks). "Biodegradation of 1,3-Diphenylpropane".
47. Logan Hughes. Summer 2023 (10 weeks). "Characterization of Styrene Oligomer Novel Biodegradation Pathways".
46. Kaitlin Graber. Spring 2022 – Spring 2023. Honors Thesis Advisor. "The Effect of Live Music in Long-Term Care Facilities on Residents, Staff, and Musicians in the COVID-19 Pandemic Environment".
45. Brooke Bouwens. Fall 2022 (1 credit hour). "Biodegradation of 1,3-Diphenylpropane".
44. Kaitlin Graber. Summer 2022 (10 weeks). "Biodegradation of Furosemide".
43. Madison Downes. Summer 2022 (10 weeks). "Biodegradation of 2,3,3,3-Tetrafluoro-2-(Heptafluoropropoxy)Propanoic Acid".
42. Connor Hamilton. Summer 2022 (10 weeks). "Biodegradation of Diphenhydramine".
41. Allison Kosins. January 2022 (3 credit hours). "Biodegradation of Ritalinic Acid".
40. Brisa Arriaga-Banda. January 2022 (3 credit hours). "Perfluorooctanoic Acid Biodegradation".
39. Brooke Bouwens. January 2022 (3 credit hours). "The Biodegradation of 1,3-Diphenylpropane".
38. Emma Saunders. Summer 2020 – Fall 2020. "2-Chloro-4-Nitro Phenol Biodegradation Pathway for enviPath".
37. Holly Granfield. Spring 2019 – Spring 2020. Honors Thesis Advisor. "Lost in Translation: The ethical ramifications of utilizing ad hoc interpreters in a healthcare setting".
36. Alexa Callaway. Fall 2018 – Spring 2019 (6 credit hours). Honors Thesis Advisor. "Determining Appropriate Intervention Points for Dental Care Disparities in Mexican-American Children".
35. Stephanie Wheeler. Fall 2016 – Spring 2017 (no credit). "2-Chloro-4-Nitrophenol Biodegradation Pathway Map".
34. Matthew Jordan. Spring 2017 (1 credit hour). "Synthesis of Styrene Dimer and Trimer Using Wolff-Kishner Reduction".
33. Alex Figueroa. Spring 2017 (no credit). "PCR of Catechol 2,3-dioxygenase Genes from Polystyrene Degrading Mealworm Gut".
32. Meaghan Adams. Spring 2016 (2 credit hours). "Optimization of Styrene Dimer and Styrene Trimer Synthesis by Clemmensen Reduction".
31. Jessica Noll. Fall 2015 (1 credit hour). "Three Mealworm Species Detection of Polystyrene Biodegradation by Mass".
30. Kaitlyn McDermitt. Fall 2015 (no credit). "Detection of Polystyrene Biodegradation by Mass Change in Mealworms".

29. Giang Hong. Spring and Summer 2015 (no credit). “2-Chloro-4-Nitrophenol Biodegradation Pathway Map”.
28. Allison Weber. Spring 2015 (2 credit hours). “Synthesis of Styrene Dimer Using Revised Clemmensen Reduction”.
27. Kyle Miller. Spring 2015 (2 credit hours). “Synthesis of Styrene Trimer by Clemmensen Reduction of 1,3,5-Triphenylpentane”.
26. Jessica Noll (with Kristen Short). Fall 2013 and Spring 2014 (no credit). “Assessment of prevalence of chronic *T. cruzi* infection and diagnostic test use in the Alto Wangki-Bocay region of Nicaragua”.
25. Michael Stocker. Spring 2014 (2 credit hours). “Ritalinic Acid Assay and Biodegradation”.
24. Loughlin Wylie. Spring 2014 (1 credit hour). “Bacteria Degradation of Styrene and Synthesis of 1,3-diphenylpropene”.
23. Loughlin Wylie. Fall 2013 (1 credit hour). “Synthesis of Styrene Dimer”.
22. Lucas Shelly. Spring 2013 (2 credit hours). “Styrene Oligomer Synthesis”.
21. Sara Barker. Spring 2013 (2 credit hours). “Synthesis and Analysis of Styrene Dimer and Trimer through Beta Zeolite Catalysis”.
20. Nicolas Salupo (with Michelle Shelly, M.D.). Fall 2012 – January 2013 (no credit). “Evaluation of the Prevalence of *Helicobacter Pylori* Infection in Symptomatic Patients in the Upper Rio Coco Region of Nicaragua”.
19. Lucas Shelly (with Michelle Shelly, M.D.). Fall 2011 – Fall 2012 (no credit). “A cross-sectional observation of diabetes in an indigenous Nicaraguan population”.
18. Erin Cole. 2010-2011. Senior Research Thesis. “Inhibiting Cancer-Associated PCNA: The Potential to Target Malignant Cell Division while Leaving Healthy Cells Untouched”.
17. A.J. Herbel. Spring 2011 (2 credit hours). “The Purification and Separation of Polystyrene”.
16. Kaitlin Johnson. Fall 2010 (2 credit hours). “The Use of a Zeolite Catalyst to Synthesize Styrene Oligomers”.
15. Tony Herber. Fall 2007 (1 credit hour). “Synthesis, Separation, and Identification of Styrene Trimer for further Study in Bacterial Degradation Pathways”.
14. Kelli Gates. Fall 2007 (1 credit hour). “Kinetic Analysis of Ritalinic Acid Biodegradation”.
13. Kelli Gates. Summer 2007 (10 weeks). “Kinetic Analysis of Ritalinic Acid Biodegradation”.
12. Tony Herber. Summer 2007 (10 weeks). “Styrene Oligomer Synthesis and Characterization”
11. Jordan Walberry. Summer 2007 (10 weeks). “Styrene Oligomer Synthesis and Characterization and Ritalinic Acid Assays”
10. Levi Hauptert. 2006-2007. Senior Research Thesis. “Potential for Large Scale Photovoltaics in Indiana.”
9. Taylor Vice. Spring 2007 (2 credit hours). “Selective Synthesis of Styrene Trimer”.
8. Amanda Patch. Fall 2006. (1 credit hour). “Biodiesel Production and Analysis”.
7. Will Patch. Fall 2006 (1 credit hour). “Degradation Kinetics of Ritalinic Acid and Alendronate Sodium”.
6. Levi Hauptert. Fall 2006 (2 credit hours). “Biodegradation of Styrene Oligomers”.
5. Jason DeWisleare. Fall 2006 (1 credit hour). “Biodegradation of Large, Polyaromatic Hydrocarbons”.
4. Nicole Swoverland. Summer 2006 (10 weeks). “Biodegradation Studies on Styrene Trimer and Pentadecafluorooctanoic Acid”.
3. Will Patch. Summer 2006 (10 weeks). “Novel Biodegradation of Alendronate Sodium and Ritalinic Acid”.
2. Jason DeWisleare. Spring 2006 (1 credit hour). “Biodegradation of Environmental Pollutants”.
1. Will Patch. Spring 2006 (1 credit hour). “Synthesis and pH Dependent Chelation Properties of Alendronate Sodium”.

## UNIVERSITY COMMITTEES

28. Higher Learning Commission Accreditation Criterion 1 Team, 2025-2026.
27. Biology-Chemistry Council, 2005-present, (Chair 2017–2020, 2021–present).
26. Pharmacogenomics Council, 2019–2020, 2021-present
25. Values, Ideas & Arts Committee, 2022-present
24. Student Research Symposium Committee, 2024-2025.
23. 90-Credit Hour Working Group (*Ad Hoc*), 2024-2025.
22. Strategic Planning Team 2022-2023

21. Population Health Council, 2021–2023, (Chair 2021–2023)
20. Higher Learning Commission Accreditation Criterion 5 Team (2021-2022)
19. Health Realignment Council (*Ad Hoc*), 2019–2020
18. Global Health Council, 2018–2020, (Chair 2018–2020)
17. Task Force on Nursing (*Ad Hoc*), 2017–2019
16. Search for Vice President for Health Science Initiatives, 2018
15. Undergraduate Academic Program Task Force (Institutional Vitality and Sustainability Initiative), 2018
14. Academic Governance Council, 2017–2019
13. Search for Environmental Studies Grants Coordinator, 2016
12. Search for Associate Dean of Natural & Health Sciences, 2015
11. Search for Dean of College of Education and Social Sciences, 2015
19. Search for Visiting Assistant Professor of Spanish, 2015
9. Search for Vice President and Dean of College of Pharmacy, 2014
8. Environmental Studies Council, 2006–2018
7. Accreditation Steering Committee (*Ad Hoc*), 2016–2017
6. Post-Bacc, Pre-Pharm, Implementation Committee (*Ad Hoc*), 2013–2016
5. Discussion Day Committee, 2012–2013
4. Honors Committee, 2009–2011
3. Technology Committee, 2008–2009
2. Faculty Executive Committee, 2007–2008
1. Campus Safety Committee, 2004–2007

#### **INTERNATIONAL EXPERIENCE**

6. Guatemala 19 weeks since 2018
5. Nicaragua 44 weeks since 2007
4. Costa Rica 1/12–7/12
3. Chile 8/11–1/12
2. The Netherlands 8/88–7/89
1. Costa Rica 7/82–7/83

#### **LANGUAGES**

3. Spanish
2. Dutch
1. English