

PROMOTION RECOMMENDATION
The University of Michigan-Flint
College of Arts and Sciences
Department of Chemistry and Biochemistry

Matthew Phaner, assistant professor of chemistry and biochemistry, Department of Chemistry and Biochemistry, College of Arts and Sciences, is recommended for promotion to associate professor of chemistry and biochemistry, with tenure, Department of Chemistry and Biochemistry, College of Arts and Sciences.

Academic Degrees:

Ph.D.	2012	Michigan State University, Analytical Chemistry, East Lansing, MI
B.A.	2007	Michigan State University, Chemistry, East Lansing, MI

Professional Record:

2014-Present	Assistant Professor of Chemistry, University of Michigan-Flint, Michigan
2013-2014	Post-doctoral Research Assistant, United States Department of Agriculture

Summary of Evaluation:

Teaching: During the his first six years at the University of Michigan-Flint Professor Phaner has taught seven different classes with a balance between lower level and upper level undergraduate courses and has established himself as a faculty member who is deeply committed to his students' learning. In addition to setting high expectations for his students, Professor Phaner believes that his role "is to provide the structure, support, experience, and feedback required for each individual student to grow within the classroom and their individual career goals..." This statement underscores how student learning depends on his pedagogy grounded in the time, effort, and reflection on his students' learning.

Professor Phaner's approach to teaching has been validated by his student evaluations of teaching, peer evaluations and a review of his teaching materials. Regarding his course evaluations, the averages for the questions "Overall, this was an excellent course," "I learned a great deal in this course," and "Overall, the instructor was an excellent teacher," were 4.32, 4.42 and 4.59, respectively. His peer reviews of teaching repeatedly highlight his excellent rapport with students and effective use of active learning pedagogy. The review of his course syllabi over time and course materials, as well as his reflective statement on teaching, provide strong evidence of how Professor Phaner has continually developed as a teacher and has implemented best practices acquired from attending summer conferences on Chemistry Education, conferences on teaching sponsored by the American Chemical Society, and numerous campus workshops to enhance his teaching and pedagogy. He is deeply engaged with the assessment of student learning in his courses, for his program, and most recently, for the college's initiative to integrate Signature Assignments (learning activities that emphasize the integration of learning and reflection) into General Education courses.

Research: Professor Phaner is an analytic chemist whose areas of expertise incorporate functional food research, electrochemistry, and separation science. More specifically, Professor Phaner's scholarship utilizes electrochemistry to monitor the levels of natural antioxidants to determine their efficiency in fish oils that have protective structures and functions. During his tenure at the University of Michigan-Flint, Professor Phaner has served as the primary researcher on three peer reviewed journal articles appearing in *ASC Omega*, the *Eur. J. Lipid Sci. Technol.*, and *J Am Oil Chem Soc*. The last publication won the best paper award from the American Oil Chemists' Society in 2018. In addition, Professor Phaner has contributed his research expertise to peer reviewed publications in the *European Journal of Lipid Science and Technology*, and *LWT Food Science and Technology*.

Professor Phaner's research has immediate benefits to society in that his work developed a methodology that reliably measures the quality of antioxidants over time in consumer products. His research also allows for the identification of new sources of protective antioxidants such as sesamol which is isolated from sesame seeds. Professor Phaner's research can contribute to our understanding of how to protect the structure and function of the omega-3 fatty acids docosahexaenoic acid (EPA) and docosahexaenoic acid (DHA). Not only is Professor Phaner's scholarship respected, it is also the case that he has successfully integrated undergraduate students in his research activities thereby enriching their educational experiences.

Recent and Significant Scholarly Activity:

- Keene, K. A., Ruddy, R. M., Phaner, M. J. (2019). Investigating the Relationship between Antioxidants and Fatty Acid Degradation Using a Combination Approach of GC-FID and Square-Wave Voltammetry. *ACS Omega*, 4(1), 983-991. DOI: 10.1021/acsomega.8b02275
- Hwang, H-S., Phaner, M.J., Winkler-Moser, J.K., Liu, S.X. (2018). Oxidation of Fish Oil Oleogels Formed by Natural Waxes in Comparison with Bulk Oil. *European Journal of Lipid Science & Technology*. DOI: 10.1002/ejlt.201700378
- Lubcekyj, R. A., Winkler-Moser, J.K., Phaner, M. J. Application of Differential Pulse Voltammetry to Determine the Efficiency of Stripping Tocopherols from Commercial Fish Oil. *Journal of the American Oil Chemists' Society*, 94 (4), 1-10. DOI: 10.1007/s11746-017-2968-0

Service: Since his arrival in the fall of 2014, Professor Phaner has been an outstanding faculty member in the area of service and participation in recruitment events – including freshmen and transfer student orientations, Fall Preview events, and new student panels. For his department, he has served on its Curriculum Advisory Committee, one tenure-track search committee and numerous hiring committees for Lecturers. At the college level, Professor Phaner has served five years on the Curriculum Committee, one year as the chair, as well as being a member of the college's ad hoc General Education subcommittee to implement its current Strategic Plan. Professor Phaner contributes his curricular expertise by serving as a member of the university's General Education Curriculum Committee, as well as the university's Nominating Committee, and the Research and Creative Activities Committee. Professor Phaner is a member of the American Oil Chemists' Society, The Association of Analytical Chemists and has served as a peer reviewer for *Food Chemistry*, *Functional Foods in Health and Disease*, and *Chemistry Central Journal*. Finally, Professor Phaner has worked with Freeland Middle and High schools as well as being a Dow STEM ambassador.

External Reviewers:

Reviewer (A): "Using his analytical skills, professor Phaner has developed a way to monitor in real-time both antioxidant and fatty acid levels and his electrochemistry-based method of analysis may provide a simple, fast, and portable method for potentially assessing quality during the shelf-life of a product."

Reviewer (B): "In particular, I found the use of Gas chromatography and square wave voltammetry to show the relationships between antioxidant degradation and fatty acid degradation to be especially creative."

Reviewer (C): "Dr. Phaner's scholarly work over the past five years is impressive. His research is relevant, he has maintained an important collaboration with the USDA, and he has been successful in including undergraduates as co-authors of papers in respected chemistry journals."

Reviewer (D): "The methods used in his work, in and of themselves, are not particularly novel... however, the application of these methods to antioxidants in fish oils continues to evolve through this work and the effectiveness of the method is clearly demonstrated."

Reviewer (E): “His independent research seems likely to have a significant impact, both in technique development and in answering important questions.”

Summary of Recommendation:

Professor Phaner’s record of teaching effectiveness is highlighted by his extremely strong student and peer evaluations, his authentic reflections on his pedagogy, and his commitment to continually improving his teaching. As an analytic chemist, Professor Phaner’s scholarly expertise is utilized to directly benefit society by developing techniques to reliably measure the quality of antioxidants, identify a new sources of protective antioxidants from sesame seeds, and to enhance our understanding of how to protect the structure and function of beneficial omega-3 fatty acids. He has developed a strong record of service, highlighted by the intersection of his work on the college’s Curriculum Committee, the university’s General Education Curriculum Committee and his contributions to the new initiative to promote integration of learning within the General Education curriculum. I recommend Matthew Fhanner for promotion to associate professor of chemistry and biochemistry, with tenure, Department of Chemistry and Biochemistry, College of Arts and Sciences.

Recommended by:




Susan Gano-Phillips, Dean
College of Arts and Sciences

Recommendation endorsed by:



Keith Moreland, Interim Provost and
Vice Chancellor for Academic Affairs



Debasish Dutta, Chancellor
University of Michigan-Flint

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