

PROMOTION RECOMMENDATION  
The University of Michigan-Dearborn  
College of Arts, Sciences, and Letters  
Department of Natural Sciences

Simona Marincean, assistant professor of chemistry, Department of Natural Sciences, College of Arts, Sciences, and Letters, is recommended for promotion to associate professor of chemistry, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters.

Academic Degrees:

Ph.D.	2003	Michigan State University, East Lansing, MI (Physical Organic Chemistry)
M.S.	1993	Babes-Bolyai University, Cluj-Napoca, Romania (Chemical Engineering)
B.S.	1993	Babes-Bolyai University, Cluj-Napoca, Romania (Chemical Engineering)

Professional Record:

2007 – Present	Assistant Professor of Chemistry, Department of Natural Sciences, University of Michigan-Dearborn, Dearborn, MI
2003 – 2007	Post-doctoral Research Associate, Michigan State University, East Lansing, MI
1994 – 1997	Chemical Engineer, Research and Development Department, S.C. Farmec S.A., Cluj-Napoca, Romania

Summary of Evaluation:

Teaching: Professor Marincean's teaching is rated excellent. Since her arrival in 2007, she has had a major role in teaching the full range of organic chemistry courses, including Organic Chemistry I and II lectures, as well as the Organic Chemistry Laboratory. These classes are taken by all chemistry, biochemistry, and biological sciences majors, particularly those who are interested in pursuing careers in the health sciences. In addition, she has also regularly taught the Advanced Organic Synthesis and Characterization Laboratory, and developed a new course entitled Green Chemistry. Professor Marincean's students praise her for her comprehensive knowledge of organic chemistry and her ability to illustrate important concepts using 'real world' examples. They acknowledge her passion for her subject, her clear explanations and detailed notes, and deep concern for their learning. These comments are corroborated in Professor Marincean's overall instructor ratings which have been highly positive: 79% of all her students in her classes have ranked her as either "Excellent" or "Above Average." In recognition of her outstanding performance, Professor Marincean was nominated for the UM-Dearborn Distinguished Teaching Award (non-tenured category) in 2012. She makes effective use of instructional technology in her classes, employing course management tools as a means for communicating with her students and encouraging peer instruction, as well as making available to them class notes, handouts, and ancillary learning materials. She has a keen interest in chemistry education and has developed two novel laboratory exercises for organic chemistry that have been published or are pending in the *Journal of Chemical Education*, the premier journal of its kind in the field.

Research: Professor Marincean's research is rated as significantly capable. Her research is focused on physical organic chemistry and green chemistry, and she is distinguished by her use of both computational and experimental techniques in seeking solutions to problems with close connections to biology and environmental science. She is a leader in the exploration of dihydrogen bonding catalysis, and in modeling reaction pathways. Her publications have appeared in tier-one journals like the *Journal of Physical Chemistry A* and the *Journal of Physical Organic Chemistry*, and she and

her students have delivered more than a dozen presentations on projects originating in her lab at local, regional and national scientific meetings. Since joining the UM-Dearborn faculty in 2007, Professor Marincean has mentored nearly two dozen students and received more than \$45,000 in grant awards to support her studies and her students. She was the lead investigator on two patent awards for developing a new process for preparing lactic acid, glyceric acid, and propylene glycol, key compounds in several important biological and commercial processes.

#### Recent and Significant Publications:

- S. Marincean, S. Smith, M. Fritz\*, B. J. Lee\*, Z. Rizk\*. NMR studies of structure-reactivity relationships in carbonyl reduction: A collaborative advanced laboratory experiment, *J. Chem. Educ.* 2012, DOI:10.1021/ed3002573.
- S. Marincean, M. Fritz\*, R. Scamp, J. E. Jackson. Mechanistic investigations in reduction of alpha-hydroxyl carbonyl compounds by  $\text{BH}_4^-$ , *J. Phys. Org. Chem.* 2012, DOI:10.1002/poc.2986.
- S. Marincean, M. Rabago-Smith, L. Beltz, B. Borhan. Selectivity of labeled bromoethylamine for protein labeling, *J. Mol. Model.* 2012, 18, 4547-4556.
- S. Marincean, J. E. Jackson. Can hydridic-to-protonic hydrogen bonds catalyze biological processes?" *J. Phys. Chem. A* 2010, 114, 13376-13380.

\*undergraduate students

Service: Professor Marincean's service is rated excellent. Her contributions to the department, to the campus, and to her profession are both appropriate for her stage of professional development and of high quality. Professor Marincean has been deeply engaged in the life of the Department of Natural Sciences, having served as faculty secretary, as a member and chair of the Colloquium Committee, as a member of the Student Research Poster Session Committee, the Science Building Renovation Committee, and the Matter, Energy, and Life Program Advisory Committee. She has also participated in several key faculty search committees, including one for an organic chemist which she now chairs. In each case, her thoughtful and measured participation in the deliberations of these groups has been recognized and appreciated by her colleagues. She has also participated in several campus committees and outreach activities including serving as a judge for the campus's Writing Awards program, and as a presenter and host for the annual Chemistry Olympiad event. Professor Marincean has also served her profession as a manuscript reviewer for the *Environmental Technology Journal*, the *Journal of Chemical Education*, and the *Journal of Molecular Modeling*, as well as a review panelist for grants submitted to the Canada Foundation for Innovation and the Quebec government.

#### External Reviewers:

Reviewer A: "Professor Marincean impressed me as a well-trained [junior] scientist with a broad set of skills and a lot of enthusiasm for science. Her ability to combine theory and experiment is a huge professional advantage. In my view, Professor Marincean's strongest publications to date are in the area of dihydrogen bonding. This work addresses an important question which may help to explain classical mechanisms in carbohydrate metabolism and offer new applications in organic synthesis."

Reviewer B: "Upon reviewing her papers and conference presentations, I have been impressed with the fact that she has been able to succeed ... with only undergraduates, which was extremely impressive considering the limited time commitment by undergraduates. As a Chair of a Department of Chemistry ... I am impressed with her overall productivity. I would fully support her application for promotion to Associate Professor with tenure."

Reviewer C: "It is significant that Dr. Marincean is the corresponding author on all four publications. This implies to me that she is the driving force behind the projects, and that she is able to forge productive collaborations to carry out work of greater scope and importance, at a faster pace, than [is] possible at U. Michigan-Dearborn alone. I see the collaborations as a strength in Dr. Marincean's record."

Reviewer D: "Dr. Marincean has three peer-reviewed publications in chemical journals, and one peer-reviewed publication in a journal of chemical education. Four different undergraduate students are listed as co-authors on the most recent publications. This is a respectable rate of publication for a teacher-scholar at an undergraduate institution, and outstanding for someone at a public PUI. Her involvement of undergraduate students in her published work is admirable. She is clearly on an upward trend in terms of research productivity. Compared to her peers, she is currently producing at an above-average rate."

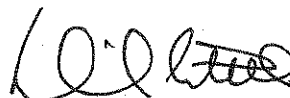
Reviewer E: "After review of Dr. Marincean's work that has been published since she began at UM-Dearborn, I believe they are of high quality and contribute to several areas of chemistry. Specifically, I would highlight the *Journal of Physical Organic Chemistry* article that was recently published. ... I was also impressed with the amount of both computational and experimental work included. Most computational chemists do not do their own experimental work and vice versa."

Summary of Recommendation:

Professor Marincean has demonstrated excellence in her teaching and service, and has shown significant capability in her research in the area of physical organic chemistry. We are pleased to recommend, with the support of the Executive Committee of the College of Arts, Sciences, and Letters, Simona Marincean for promotion to associate professor of chemistry, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters.



Jerold L. Hale  
Dean  
College of Arts, Sciences, and Letters



Daniel Little  
Chancellor  
University of Michigan-Dearborn

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