

**Olga Rinco Michels, Ph.D.**

Department of Chemistry  
Luther College  
700 College Drive  
Decorah, IA 52101

e-mail: olga.michels@luther.edu  
phone: 563-387-1684 (w)

---

***Professional Preparation***

*National Research Council of Canada, Ottawa, On, Canada*

Postdoctoral Research Associate, 2002-2003

*Adviser: Dr. Linda Johnston*

*University of Victoria, Victoria, BC, Canada*

Ph.D. in physical organic chemistry, April 2002

*Adviser: Dr. Cornelia Bohne*

*Thesis: "Complexation of probe molecules to the different binding sites of bile salt aggregates"*

*McMaster University, Hamilton, ON, Canada*

B.Sc. in Chemistry and Mathematics, May 1997

*Adviser: Dr. Ron Childs*

*Thesis: "Studies on a membrane based pH valve"*

***Employment***

Summer and Fall 2019

*ACS Exams Institute*

*Sabbatical: Ashford Fellow*

PI: Kristen Murphy

August 2017-present

*Professor of Chemistry*

Luther College, Decorah, IA

Teaching responsibilities:

- Organic Chemistry I and II (with laboratory component)
- Advanced Chemical Principles (with laboratory component)
- Senior Projects: Papers and seminar
- Arabic Science in the Middle Ages (Study away in Morocco and Spain)
- Women in Science
- Essentials of Chemistry

August 2010 – July 2017

*Associate Professor of Chemistry*

Luther College, Decorah, IA

Teaching responsibilities:

- Organic Chemistry I and II (with laboratory component)
- Advanced Chemical Principles
- General Chemistry I
- Essentials of Chemistry (with laboratory component)
- Paid 450: War, Peace and Reconciliation in Cambodia
- Advanced topics: Physical Organic (Photochemistry)
- Senior Projects: Papers and seminar
- Intersections (Honors) 130: Scholars colloquium
- Luther College's Malta Semester: Faculty leader Spring 2012
- Women in Science
- Intersections 350: Civic Engagement

Fall 2011

*Dalhousie University, Halifax, NS, Canada*

Sabbatical PhD Research Associate

PI: Dr. Frances Cozens

August 2004 – July 2010

*Assistant Professor of Chemistry*

Luther College, Decorah, IA

Teaching responsibilities:

- Organic Chemistry I and II (with laboratory component)
- General Chemistry I (lecture)
- Essentials of Chemistry (with laboratory component)
- Women in Science
- General Chemistry I and II (laboratory)
- Laboratory Safety
- Senior Projects: laboratory component
- Senior Projects: Papers and seminar
- Chemistry, the environment and society

August 2003 to May 2004

*Visiting Assistant Professor of Chemistry*

Luther College, Decorah, IA

Teaching responsibilities

- Organic Chemistry I and II (with laboratory component)
- Laboratory Safety
- General Chemistry I and II (laboratory)
- Chemical Kinetics (laboratory)

### ***Other employment***

ACS Exams Institute Associate Director for Product Development (July, 2023 – present)

- Works with the ACSEI to help develop exams and new products
- Helps with institute's research

### ***Pearson Publishing (contract worker)***

- Accuracy reviewer for Mullins' Organic chemistry self-assessment quizzes and videos (2022)
- Creating instructor solution manual and lecture Power Point slides for Owen's GOB Textbook (2022)
- Accuracy reviewer for Timberlake's GOB Storyboards (2022)
- Accuracy reviewer for Tro's General Chemistry 3<sup>rd</sup> edition (2022)
- Creating lecture PowerPoint Slides and accuracy reviewer of end of chapter quizzes for Mullins' Organic Chemistry (2020-2022)

### ***Honors and Recognition***

- Chair of the ACS exams Organic 2023 exam committee (Aug 2020 – Feb 2023)
- Ashford Fellow, ACS Exams Institute (2019)
- Doris and Ragnvald Ylvisaker Endowment Award, Luther College (2018)
- Chemistry Department Head (Jan 2017- present)
- Invited to serve on the national ACS committee to co-write the yearlong exam in organic chemistry (OR 18, from 2016 – 2017 and OR 20 from 2018 - 2019)
- Doris and Ragnvald Ylvisaker Endowment Award, Luther College (2007)
- Outstanding teaching assistant, fellowship, University of Victoria (2000 – 2001)
- Academic Research fellowship (Ph.D.), University of Victoria (1999 – 2001)
- Dr. E. and Mrs. M von Rudloff Award in Chemistry, University of Victoria (1998)
- SWOUCS-CSC, Best presentation, physical organic, undergraduate (1997)
- CIC Monseroff Medal, Hamilton, Ontario, Canada (1997)

## ***Fellowships and Grants Received***

### ***External***

*Studies of the inclusion and reactivity of curcuminoids (photodynamic drug therapy targets) with human serum albumin (blood protein)*

Iowa College Foundation – R.J. McElroy Trust

Submitted April 2018; funding period May 2018 – May 2019

\$ 1,500

*Faculty/Student Summer Research in Chemistry: Environmental pollutants and DNA*

Monticello College Foundation

Submitted February 2013; funding period: May 2013 – May 2014

\$6,700

*Investigating the fluorescence of furans, dioxanes, and polychlorinated biphenyls (PCBs) in water:*

*Developing a new technique to investigate the presence and levels of environmental pollutants.*

Grow Iowa Values Fund

Submitted October 2009; funding period: May 2010 – April 2012

\$40,000

*Faculty/Student Summer Research in Chemistry Host-Guest Complexes*

Monticello College Foundation

Submitted February 2009; funding period: May 2009 – August 2009

\$4,000

*Faculty/Student Summer Research Project*

Monticello College Foundation

Submitted February 2007; funding period: May 2007 – August 2007

\$7,000

*Faculty/Student Summer Research and Laboratory Development in Chemistry*

The Monticello College Foundation

Submitted: February, 2006; Funding period: Summer 2006

\$7,000

*Effect of Porphyrin Structure on the Binding in Human Serum Albumin (HSA)*

Iowa College Foundation – R.J. McElroy Trust

Submitted April 2005; funding period May 2005 – May 2006

\$ 1,930

### ***Internal***

*Studying the binding of curcumin derivatives (drug targets) to Human Serum Albumin (HSA, human protein) by fluorescence Spectroscopy*

Luther College: Summer Faculty/Student Collaborative Research Grant

Submitted February 2018; funding period: May 2016– August 2018

\$4,000

*Studying the relationship between drug structures and model host biological systems.*

Luther College: Summer Faculty/Student Collaborative Research Grant

Submitted February 2016; funding period: May 2016 – August 2016

\$4,000

*Investigating the fluorescence of furans and polychlorinated biphenyls (PCBs) in micelles, cyclodextrins and DNA.*

Luther College: Summer Faculty/Student Collaborative Research Grant

Submitted February 2013; funding period: May 2013 – August 2013

\$4,000

*Investigation the fluorescence of furans and polychlorinated biphenyls (PCBs) in water: Developing a new technique to investigate the presence and levels of environmental pollutants.*

Luther College: Summer Faculty/Student Collaborative Research Grant

Submitted February 2011; funding period: May 2011 – August 2011

\$4,000

*Studying the relationship between porphyrin structure (“guest”, drug molecules) and human serum albumin (“host”, model biological system)*

Luther College: Summer Faculty/Student Collaborative Research Grant

Submitted February 2009; funding period: May 2009 – August 2009

\$4,000

*Studying the relationship between porphyrin structure (drug molecules) and inclusion in model biological systems (proteins and vesicles (cell mimics))*

Luther College (Summer Student/Faculty Collaborative Research Projects)

Submitted February 2006; funding period June 2006 – August 2006

\$3,500

*Studies of the inclusion and reactivity of porphyrin probes (photodynamic drug therapy targets) with model biological systems*

Luther College (Summer Student/Faculty Collaborative Research Projects)

Submitted March 2005; funding period June 2005 – August 2005

\$3,500

**Articles (all peer reviewed) [Note: published as Olga Rinco prior to 2015, now publish as Olga Rinco Michels]**

(1) Schreurs, D.G., Nedungadi, S., Kreke, P.J., Michels, O.R., Pentecost, T.C., Raker, J.R. and Murphy, K.L.; Model-Assigned Partial Credit for Scoring Multiple-Choice Assessments. *Journal of Education Measurement*. 2025 Submitted.

(2) Michels, O.R., Schreures, D.G., Nedungadi, S., Pentecost, T.C., Kreke, P.J., Raker, J.R., and Murphy, K.L. Identification and Analysis of Item environment Effects on Organic Chemistry Multiple-Choice Exams. *Journal of Chemical Education*, 2025, 102(1), 43-52

(3) Nedungadi, S. Michels, O.R., Kreke, P.J., Raker, J.R., Murphy, K.L. Effect of a Representative Sample of Internally Calibrated Mental Effort and Polytomously Scored Data on Representing Cognitive Efficiency. *Journal of Chemical Education*, **2022**, 99, 3, 1326-1335.

(4) Holme, T. A., MacKellar, J., Constable, D.J., Michels, O.R., Trate, J.M., Raker, J.R., Murphy, K.L. Adapting the Anchoring Concepts Content Map (ACCM) of ACS Exams by Incorporating at Theme: Merging Green Chemistry and Organic Chemistry. *Journal of Chemical Education*, **2020**, 97, 2, 374-382.

(5) Rinco, O., Brenton, J., Douglas, A., Hannemann, A., Henderson, M., Indrelic, K., Wessels, J., Widin, J. A fluorescence study: looking at the effect of porphyrin structure on binding to human serum albumin. *Journal of Photochemistry and Photobiology A: Chemistry*, **2009**, 208, 91-96.

(6) O’Connell, R.J., Yuan, C., Johnston, L.J., Rinco, O., Probohd, I, Treistman, S.N. Gating and Conductance Changes in BK<sub>Ca</sub> Channels in Bilayers Are Reciprocal. *J. Membrane Biol.*, **2006**, 213, 143-153.

(7) Chen, L., Rinco, O., Popov, J., Vuong, N., Johnston, L.J. Psoralen and Coumarin Photochemistry in HSA Complexes and DMPC Vesicles. *Photochemistry and Photobiology*, **2006**, 82, 31-37.

(8) Mladenova, G., Singh, G., Acton, A., Chen, L., Rinco, O., Johnston, L.J., Lee-Ruff, E. Photochemical Pinacol Rearrangements of Unsymmetrical Diols. *Journal of Organic Chemistry*. **2004**, 69, 2017-2023.

(9) Rinco, O., Nolet, M.-C., Ovans, R., Bohne, C. Probing the Binding Dynamics to Sodium Cholate Aggregates Using Naphthalene Derivatives as Guests. *Photochemical and Photobiological Sciences*. **2003**, 2, 1140-1151.

(10) Rinco, O., Kleinman, M.K., Bohne, C. Reactivity of Benzophenones in the Different Binding Sites of Sodium Cholate Aggregates. *Langmuir*. **2001**, 17, 5781-5790.

## **Other Publications**

(1) ACS Organic Chemistry Exams-The Official Study Guide (Volume 2). Contributing author and editor. 2020

## **Conference Presentations**

Michels O.R., Schreurs, D., Kreke, P., Raker, J., Nedungadi, S., and Murphy, K., July, 2023, *A practitioner's take away on item-order effects in multiple choice organic exams*, Gordon Research Conference, Bates College, Maine.

Michels. O.R., Murphy, K. L., Raker, J.R., Nedungadi, S. Petnecost, T.C., July 2022, *Item Independence of first semester multiple-choice organic chemistry exam items*. BCCE ACS meeting, Purdue University. (Oral presentation)

Michels. O.R., Murphy, K.L., Raker, J.R., Pentecost, T.C., March 2020, *Factors that impact the difficulty of organic chemistry exam items: Looking at item order effects*. National ACS meeting, Philadelphia, PA (SciMix Poster)

Michels, O.R., Using Fluorescence Spectroscopy to Probe the Relationship Between Drug Targets and HSA. Local ACS 2018 Midwest Regional Meeting, Ames, IA. (oral presentation)

\*Fuller, E., \*Roozeboom, M., \*Starman, E., Michels O.R., November 2017. *Using UV-vis spectrophotometry and fluorescence spectroscopy to analyze the binding relationship of Curcuminoids and HSA*. Midstates consortium undergraduate research conference, Chicago, Il. (poster)

Michels, O., \*Amann, M., \*Fuller, E., \*Meyer, G., \*Roozeboom, M., \*Starman, E., Aug 2017 *Analyzing the binding relationship between curcuminoids and HSA by Steady State Fluorescence Spectroscopy*. National ACS meeting, Washington, DC (poster)

Michels, O., \*Itanze, D., \*Gast, G., \*Bumpus, T., \*Huju, J.,\* Panning, A. May 2016 *Determining Host-Guest Interactions of Common Environmental Pollutants via Fluorescence Spectroscopy*. IAPS (InterAmerican Photochemical Association) Conference, Santiago, Chile. (poster)

\*Itanze, D., Michels, O.R., March 2016. *Determining Host-Guest Interactions of Common Environmental Pollutants via Fluorescence Spectroscopy*. National ACS meeting, San Diego, CA. (poster)

\*Mueller, E., \*Starr, R., Michels O.R., March 2015. *Development in Undergraduate Organic Chemistry Laboratory Curriculum*. National ACS meeting, Denver, CO. (poster)

\*Mueller, E., \*Starr, R., Michels O.R., November 2014. *Development in Undergraduate Organic Chemistry Laboratory Curriculum*. Midstates consortium undergraduate research conference, St. Louis, MO. (poster)

\*Gast, G., \*Bumpus, T., \*Huju, J.,\* Panning, A., Rinco, O. April 2014. *Detecting Trace Amounts of Organic Pollutants by Fluorescence Spectroscopy*. NCUR 2014, Lexington, Kentucky. (Oral presentation)

\*Gast, G., \*Bumpus, T., \*Huju, J.,\* Panning, A., Rinco, O. Nov. 2013. *Detecting Trace Amounts of Organic Pollutants by Fluorescence Spectroscopy*. Midstates consortium undergraduate research conference, Chicago, Il. (Poster)

Rinco, O., \*Fyfe, V., and \*Knight, A. January 2013. *Detecting Trace Amounts of Organic Pollutants by Fluorescence Spectroscopy*. IAPS (InterAmerican Photochemical Society) meeting, Sarasota, FL. (Poster)

\*Fyfe, V., and \*Knight, A., Rinco O. November 2011. *Detecting Trace Amounts of Organic Pollutants by Fluorescence Spectroscopy*. Midstates consortium undergraduate research conference, Chicago, Il. (Poster)

\*Crumley, M.,\* Indrelic, K., Rinco, O. November 2010. *Detecting Trace Amounts of Organic Pollutants by Fluorescence Spectroscopy*. Midstates consortium undergraduate research conference, St. Louis, MO (Poster)

\*Wessels, J., \*Indrelie, K., Rinco, O. November 2009. *The Role of Porphyrin Structure in Porphyrin-HSA Binding*. Midstates consortium undergraduate research conference, Chicago, IL. (poster). (Poster)

\*Wessels, J., \*Indrelie, K., Rinco, O. July 2009. *The Role of Porphyrin Structure in Porphyrin-HSA Binding*. 2009 Gordon Research Conference on Photo chemistry, Bryant University, Smithville, RI. (Poster)

\*Brenton, J., \*Douglas, A., Rinco, O. November 2007. *The Role of Porphyrin Structure in Porphyrin-HSA Binding*. Midstates consortium undergraduate research conference, Chicago, IL. (poster)

\*Henderson, M., \*Widin, J., \*Hannemann, A., Rinco, O. June 2007. Effect of Porphyrin Structure on Binding in Human Serum Albumin (HSA). 2007 Canadian Institute of Chemistry National Conference, Winnipeg, MA, Canada. (oral presentation)

\*Henderson, M., \*Widin J., and Rinco O. April 2007. *Effect of porphyrin structure on binding in human serum albumin (HSA)*. 2007 National Conference for Undergraduate Research, Dominican University, CA. (oral presentation)

\*Hannemann, A., \*Henderson, M., \*Widin, J., \*Dicke, J., and Rinco O. March 2007. *Effect of porphyrin structure on binding to HSA (human serum albumin)*. 233rd ACS National Meeting, Chicago, IL. (poster)

\*Henderson, M., \*Widin, J., and Rinco, O. November 2006. *Effect of porphyrin structure on binding to Human Serum Albumin (HSA)*. PEW Undergraduate research conference, St. Louis, MO. (poster)

\*Miller Meyer, J.A., \*Rapacz, A., \*Hannemann, A., and Rinco O. May, 2006. *Effect of Porphyrin Structure on the Inclusion of Porphyrins in Human Serum Albumin*. R.J. McElroy and Maytag student/faculty research symposium, Wartburg College, Waverly, IA. (poster)

\*Miller Meyer, J.A., \*Hannemann, A., and Rinco, O. April 2006. *Effect of porphyrin structure on binding to Human Serum Albumin (HSA)*. 2006 National Conference for Undergraduate Research, Asheville, NC. (poster)

\*denotes Luther College undergraduate student