

**PROMOTION REPORT - INDIVIDUAL**  
(January 1, 2012 - December 31, 2015)

Candidate for promotion to: Associate Professor

**I. GENERAL INFORMATION**

<b>Faculty Name:</b> Jennifer C. Klein	<b>Department:</b> Biology
--	----------------------------

**Education**

PhD, University of Minnesota, Biochemistry, Molecular Biology, and Biophysics. (2008).

BA, College of St. Benedict, Chemistry. (2002).

**II. NARRATIVES**

**A. Combined Teaching, Scholarship, and Service Narrative**

[Download File \(jklein/promotion/Narrative\\_Klein-5.pdf\)](#)

**III. TEACHING**

**A. Teaching Schedule**

**Spring 2015**

Course & Section	Title	New Course Prep.	New Format for Existing Course	Enrollment	Number of Credit Hours	Delivery Mode
BIO - Biology 315-13L	Cell Biology	No		17	0	
BIO - Biology 315-3	Cell Biology	No		56	4	
<a href="#">Download File (jklein/schteach/KLEIN_BIO_315_syllabus-F2015-1.pdf)</a>						
BIO - Biology 460-3	Physical Biology of the Cell	No		8	3	
<a href="#">Download File (jklein/schteach/2015_Syllabus_Klein_Bio460-1.pdf)</a>						
BIO - Biology 491-1	Capstone Seminar	No		20	1	
<a href="#">Download File (jklein/schteach/Capstone_syllabus_Howard-Klein_Spring2015-1.pdf)</a>						
BIO - Biology 499-8	Independent Research	No		2	2	

**Fall 2014**

Course & Section	Title	New Course Prep.	New Format for Existing Course	Enrollment	Number of Credit Hours	Delivery Mode
BIO - Biology 105-7	General Biology	No		71	4	
<a href="#">Download File (jklein/schteach/Klein_Fall2014_Syllabus-1.pdf)</a>						
BIO - Biology 315-10L	Cell Biology	No		19	0	
BIO - Biology 436-2	Molecular Bio Lab	No		20	1	
<a href="#">Download File (jklein/schteach/2015_Syllabus_MolBiollab-1.pdf)</a>						
BIO - Biology 536-2	Molecular Bio Lab	No		3	1	
CHM - Chemistry 489-5	Independent Study	No		1	2	

## Spring 2014

Course & Section	Title	New Course Prep.	New Format for Existing Course	Enrollment	Number of Credit Hours	Delivery Mode
BIO - Biology 315-10L	Cell Biology	No		19	0	
BIO - Biology 315-15L	Cell Biology	No		20	0	
BIO - Biology 450-04	Internship Biology	No		1	3	
BIO - Biology 460-01	Molecular Biophysics	No		4	3	

[Download File \(jklein/schteach/2014\\_MachineryLife\\_Syllabus-1.pdf\)](#)

BIO - Biology 491-05	Capstone Seminar	No		20	1	
BIO - Biology 499-09	Independent Research	No		1	1	

## Fall 2013

Course & Section	Title	New Course Prep.	New Format for Existing Course	Enrollment	Number of Credit Hours	Delivery Mode
BIO - Biology 105-08	General Biology	No		85	4	
BIO - Biology 315-15L	Cell Biology	No		19	0	
BIO - Biology 436-02	Molecular Bio Lab	No		17	1	
BIO - Biology 491-01	Capstone Seminar	No		20	1	

## Spring 2013

Course & Section	Title	New Course Prep.	New Format for Existing Course	Enrollment	Number of Credit Hours	Delivery Mode
BIO - Biology 105-05	General Biology	Yes	No	60	4	Classroom

BIO - Biology 315-11L	Cell Biology	No		20	0	
BIO - Biology 315-15L	Cell Biology	No		20	0	

## Fall 2012

Course & Section	Title	New Course Prep.	New Format for Existing Course	Enrollment	Number of Credit Hours	Delivery Mode
BIO - Biology 105-6	General Biology	Yes	No	93	4	Classroom
BIO - Biology 315-14L	Cell Biology	Yes	No	20		Laboratory
BIO - Biology 436-2	Molecular Bio Lab	Yes	No	16	1	Laboratory

BIO - Biology 536-2	Molecular Bio Lab	No		1	1	
---------------------	-------------------	----	--	---	---	--

### Non-Credit Instruction Taught

GROW La Crosse Farm Experiences, GROW La Crosse, 100 participants, Academic. (May 2015 - August 2015).

Continuing Education, Young Scholars Program at University of Wisconsin-La Crosse, 40 participants, Academic. (July 2014).

Continuing Education, Kid's College, 40 participants, Academic. (May 2014).

Continuing Education, Young Scholars Program at University of Wisconsin-La Crosse, Academic. (July 2013).

## Grants

Klein, Jennifer (Principal), Baines, Anita (Co-Principal), Cooper, Scott T (Co-Principal), Sandland, Gregory (Co-Principal), "Assessing Quantitative and Computational Skills Across Biology Curriculum" (Funded), UW-L Faculty Development Grant, \$14000. (May 2015 - May 2016).

[Download File \(jklein/congrant\\_teaching/01\\_Proposal\\_Narrative-1.pdf\)](#)

Klein, Jennifer, (Principal) "Course-embedded undergraduate research in physical biology of the cell" (Funded), UW-L Grant, \$2000. (February 2015 - June 2015).

[Download File \(jklein/congrant\\_teaching/KLEIN\\_CURE\\_RFP-1.pdf\)](#)

Klein, Jennifer (Co-Principal), Baines, Lee (Co-Principal), Klein, Barrett (Co-Principal), Gerrish, Gretchen (Co-Principal), "Lesson Study Grant" (Funded), UW-L Grant, \$2000. (June 2014 - May 2015).

[Download File \(lbaines/congrant\\_teaching/LSGGrant\\_2014-15\\_GuideApp-1.pdf\)](#)

Klein, Jennifer (Principal), "Learning by Design Program" (Funded), UW-L Grant, \$2500. (June 2013 - June 2014).

## B. Additional Teaching Evidence

TE1: Aggregated assessment of Bio 105 General Biology.

[Download File \(jklein/promotion/TE1\\_Bio105-3.pdf\)](#)

TE2: Preliminary assessment of the use of 3D molecular models in multiple courses.

[Download File \(jklein/promotion/TE2\\_3DModels-1.pdf\)](#)

TE3: Aggregated assessment of Bio 315 Cell Biology Lab

[Download File \(jklein/promotion/TE3\\_Bio315\\_Lab-2.pdf\)](#)

TE4: Results from student reported learning gains in Bio 315 Cell Biology Lecture.

[Download File](#)

[\(jklein/promotion/TE4\\_2015\\_Spring\\_Bio315\\_Lecture\\_Assessment-1.pdf\)](#)

TE5: Accepted CUR Quarterly publication on course-embedded research in Bio 436 Molecular Biology Lab.

[Download File \(jklein/promotion/TE5\\_Cooper-CUR\\_Quarterly-1.pdf\)](#)

TE6: Assessment of Bio 460 Machinery of Life.

[Download File \(jklein/promotion/TE6\\_2014\\_Final\\_Report\\_Bio460-1.pdf\)](#)

TE7: Assessment of course-embedded research in Bio 460 Physical Biology of the Cell.

[Download File \(jklein/promotion/TE7\\_2015\\_Biophysics\\_CATL-1.pdf\)](#)

TE8: Miskowski letters from teaching observations.

[Download File \(jklein/promotion/TE8\\_Miskowski\\_ALL-1.pdf\)](#)

## IV. SCHOLARSHIP

### A. Intellectual Contributions

## Published and Accepted

### 1. Journal Article, Academic Journal

Cooper, S., Klein, J., Galbraith, A. Development of a client-based undergraduate molecular biology laboratory. To appear in *Council on Undergraduate Research Quarterly*. (Accepted: September 2015).

### 2. Journal Article, Professional Journal

M. M., Thompson, A., Nitu, F., Moen, R., Olenek, M., Klein, J., Thomas, D. (2015). Impact of methionine oxidation on calmodulin structural dynamics. *Biochemical and biophysical research communications*, 456(2), 567-72.

- [Download File \(jklein/intellcont/2015\\_Klein\\_CaMDEER-1.pdf\)](#)

Klein, J., Moen, R. J., Thomas, D. D. (2014). Electron Paramagnetic Resonance Resolves Effects of Oxidative Stress on Muscle Proteins. *Exercise and Sport Sciences Reviews*, 42(1), 30-6.

- [Download File \(jklein/intellcont/2014\\_Klein\\_ExerciseOxStress-1.pdf\)](#)

Moen, R., Cornea, S., Nitu, D. O., Binder, B., Klein, J., Thomas, D., Klein, J. (2014). Redox-sensitive residue in the actin-binding interface of myosin.. *Biochemical and biophysical research communications*, 453(3), 345-9.

- [Download File \(jklein/intellcont/2014\\_Klein\\_RedoxMyosin-1.pdf\)](#)

Moen, R. J., Thomas, D. D., Klein, J. (2013). Conformationally Trapping the Actin-Binding Cleft of Myosin with a Bifunctional Spin Label. *Journal of Biological Chemistry*, 288(5), 3016-24.

- [Download File \(jklein/intellcont/J. Biol. Chem.-2013-Moen-3016-24-1.pdf\)](#)

## Works in Progress

### 1. Material Regarding New Courses/Curricula

Sundberg, B., Eigner, R., Klein, J. (2015). *Farm-based science learning: stream ecology*. University of Maryland, College Park, MD: Sustainable Agricultural Research and Education. (Accepted: September 2015).

- [Download File \(jklein/intellcont/StreamEcology-1.pdf\)](#)

## Other Scholarly Activities

### 1. Papers presented at academic conference

Klein, J., Gordon Conference in Oxidative Stress and Aging, Gordon Research Conferences, Ventura, California, "Navigating the fields of oxidative stress and aging: From postdoc to tenure-track faculty." (Date Presented: March 1, 2015).

Klein, J. (Presenter & Author), Devine, D. (Co-Author), Gordon Conference in Oxidative Stress and Aging, Gordon Research Conferences, Ventura, California, "Pivotal role of methionine-aromatic interactions in redox regulation." Abstract. (Date Presented: March 1, 2015).

Klein, J. (Presenter & Author), McCarthy, M. (Presenter & Author), Minnesota Muscle Symposium, University of Minnesota, Minneapolis, MN, "Pulsed EPR to measure the structural impact of Met oxidation in calmodulin." (Date Presented: May 30, 2014).

Herbst, N. (Co-Author/Co-Presenter), Wilson, T. (Co-Author/Co-Presenter), Klein, J. (Co-Author), Cooper, S. T. (Co-Author/Co-Presenter), Experimental Biology, American Physiology Society, San Diego, CA, "Detection of cranberry and blueberry (*Vaccinium* sp.) DNA by PCR amplification of the MatK gene." Abstract. (Date Presented: April 28, 2014).

- Olenek, M. (Presenter & Author), Thomas, D., Klein, J. (Presenter & Author), Biophysical Society Annual Meeting, Biophysical Society, San Francisco, CA, "Computational simulations reveal how calmodulin methionine oxidation triggers large-scale changes in structural dynamics." Abstract. (Date Presented: February 2014).
- McCarthy, M. (Presenter & Author), Olenek, M., Reuter, M., Moen, R., Thomas, D., Klein, J. (Presenter & Author), Biophysical Society Annual Meeting, Biophysical Society, San Francisco, CA, "Pulsed EPR distance measurements resolve the impact of site-specific calmodulin methionine oxidation." Abstract. (Date Presented: February 2014).
- Colson, B. (Presenter & Author), James, Z., Klein, J. (Author Only), Thomas, D., Biophysical Society Annual Meeting, Biophysical Society, San Francisco, CA, "Structural dynamics of cardiac myosin-binding protein-C and its myofilament binding partners detected by site-directed spectroscopy." Abstract. (Date Presented: February 2014).
- Olenek, M. (Presenter & Author), Thomas, D., Klein, J. (Presenter & Author), Regional Biophysical Society Networking Event, Biophysical Society, La Crosse, WI, "Computational simulations reveal how calmodulin methionine oxidation triggers large-scale changes in structural dynamics." Abstract. (Date Presented: October 19, 2013).
- McCarthy, M. (Presenter & Author), Olenek, M., Reuter, M., Moen, R., Thomas, D., Klein, J. (Presenter & Author), Regional Biophysical Society Networking Event, Biophysical Society, La Crosse, WI, "Pulsed EPR distance measurements resolve the impact of site-specific calmodulin methionine oxidation." Abstract. (Date Presented: October 19, 2013).
- Moen, R. J. (Presenter & Author), Klein, J. (Co-Author/Co-Presenter), Oseid, D. E. (Author Only), Thomas, D. D. (Author Only), Gordon Conference on Aging Biology, Gordon Research Conferences, Lucca, Italy, "Redox Sensitive Residue in Myosin II Actin-Binding Interface." (Date Presented: August 16, 2013).
- Klein, J. (Presenter & Author), Moen, R. J. (Co-Author/Co-Presenter), Wellnitz, H. (Author Only), McCarthy, M. (Author Only), Reuter, M. (Author Only), Olenek, M. (Author Only), Thomas, D. D. (Author Only), Gordon Conference on Aging Biology, Gordon Research Conferences, Lucca, Italy, "Structural Impact of Site-Specific Calmodulin Methionine Oxidation." (Date Presented: August 16, 2013).
- Klein, J., Saint John's University, Department of Biology Seminar Series, Saint John's University, Collegeville, MN, "Structural and functional impact of muscle protein oxidation." (Date Presented: April 2013).
- Klein, J. (Presenter & Author), Olenek, M. (Co-Author), Biophysical Society Annual Meeting, Biophysical Society, Philadelphia, PA, "Site-Specific Calmodulin Methionine Oxidation Alters Linker Helix Dynamics." Abstract. (Date Presented: February 2013).
- Klein, J., Mayo Clinic Department of Physiology and Biomedical Engineering Seminar Series, Mayo Clinic, Rochester, MN, "Structural and functional impact of muscle protein oxidation." (Date Presented: September 2012).

## 2. Editorial and Review Activities

Editage, Cactus Global, Freelance Editor. (June 2015 - August 2015).

Assisted in the scientific development and writing of over 90 manuscripts in the fields of biochemistry, molecular biology, and biophysics.

"Spin-labeled methionine uptake in glioma cells: The development of a contrast agent for brain tumor imaging using an ESR method", Magnetic Resonance Imaging, Ad Hoc Reviewer, Papers, International. (March 2015).

Peer-review of research article

"Investigation of disordered proteins and membrane proteins by multinuclear NMR spectroscopy", National Scientific Research Fund (OTKA) of Life Science, Grant Reviewer, International, 1 items

edited/reviewed. (May 8, 2013).

Critically review the grant entitled "Investigation of disordered proteins and membrane proteins by multinuclear NMR spectroscopy."

### 3. Other Faculty Development Activities Contributions

Teaching, Poster, "2015 Summer UWL Conference on Teaching & Learning," CATL UWL, La Crosse, WI, United States. (August 2015).

"Course-embedded research in Bio 460: Physical Biology of the Cell."

Teaching, Discussion Panel, "WiSCUR August 2015 Workshop on Establishing Research Networks," UWL, La Crosse, WI, United States. (August 2015).

"Course-embedded undergraduate research."

Teaching, Poster, "2014 Summer UWL Conference on Teaching & Learning," CATL UWL, La Crosse, WI, United States. (August 2014).

"Redesign of Biophysics as a 400-level Biology Course at UW-La Crosse."

Teaching, "Learning by Design Program," Center for Advancing Teaching and Learning (CATL), La Crosse, WI, United States. (July 1, 2013 - July 1, 2014).

This is a one-year program aimed at assisting me with the design of "Machinery of Life," a new biophysics course taught in Spring 2014. The backwards design approach involved clarifying course objectives, attending workshops focused on student learning and effective instruction, and finally, the development of new instructional materials.

### Contracts, Grants, and Sponsored Research

Klein, Jennifer (Principal), "Structural impact of methionine oxidation in muscle proteins" (Funded), External Grant, Sponsored by National Institutes of Health, \$329169. (September 15, 2015 - August 31, 2018).

[Download File \(jklein/congrant\\_research/08\\_Research\\_Strategy-1.pdf\)](#)

Klein, Jennifer (Principal), "Structural impact of methionine oxidation in muscle proteins" (Not Funded), External Grant, Sponsored by National Institutes of Health, \$397300.

Klein, Jennifer (Principal), "Myosin-X regulation through calmodulin-like protein" (Funded), UW-L Grant, \$12000. (July 1, 2014 - June 30, 2015).

[Download File \(jklein/congrant\\_research/Klein\\_FacultyResearchGrant-1.pptx\)](#)

Klein, Jennifer (Principal), "Structural and functional impact of muscle protein oxidation" (Funded), UW-L Grant, \$12500. (July 1, 2013 - June 30, 2014).

[Download File \(jklein/congrant\\_research/FGR\\_Compiled-1.pdf\)](#)

Masterson, Larry R. (Principal), Loh, Adrienne P (Supporting), Klein, Jennifer (Supporting), Ha, Kim N (Supporting), Gallagher, Warren (Supporting), Hati, Sanchita (Supporting), Pevette, Lisa E. (Supporting), Majerle, Rita (Supporting), Matachek, John R. (Supporting), O'Donnell, Deanna (Supporting), Schlotter, Nicholas (Other), Fierke, Melissa (Other), "MRI: Acquisition of a High-Field NMR Spectrometer at Hamline University" (Unfunded), External Grant, Sponsored by NSF (National Science Foundation), \$998708. (August 1, 2015 - July 31, 2018).

[Download File \(jklein/congrant\\_research/Final-Proposal-012314-2-1.pdf\)](#)

Klein, Jennifer, "Minnesota Supercomputing Institute Renewal" (Funded), External Grant, Sponsored by Minnesota Supercomputing Institute. (January 2015 - January 2016).

Klein, Jennifer (Co-Principal), Reuter, Mitch (Principal), "Spectroscopic Distance Measurements in Calmodulin" (Funded), External Grant, Sponsored by Sigma Xi Grant in Aid of Research, \$1000. (May 3, 2013 - May 3, 2014).

Klein, Jennifer (Principal), "Molecular physiology of muscle aging" (Not Funded), External Grant, Sponsored by American Federation for Aging Research, \$100000.

[Download File \(jklein/congrant\\_research/KleinJennifer-1.pdf\)](#)

Klein, Jennifer (Principal), "Structural Impact of Muscle Protein Oxidation" (Not Funded), External Grant, Sponsored by Research Corporation for Science Advancement, \$45048.

[Download File \(jklein/congrant\\_research/Cottrell\\_Proposal\\_Klein-1.pdf\)](#)

## Student Research

### 1. Graduate Student Theses/Projects

Thesis Advisor, Hoogland, Matthew, Biology, Biology, MS, "Thermodynamic characterization of calmodulin mutants," In-Process. (September 2015 - Present).

Thesis Committee Member, Alhumaidi, Maryam, Biology, Biology, MS, "IDENTIFICATION OF A PLANT SPECIFIC COMPONENT OF THE SECRETORY PATHWAY USING THE MODEL PLANT CHLAMYDOMONAS REINHARDTII," Completed. (January 2014 - January 2015).

### 2. Undergraduate Research

Sundberg, Brynn, Biology, "Integrating garden- and farm-based learning into a K-5 science curriculum." (May 2015 - Present). Brynn is on our GROW team and has created a module on stream ecology for use in summer farm camps for K-5 students that we co-taught in Summer 2015. This is part of a larger project aimed at assessing the impact of project-based learning in elementary school science. She accepted a position at the Mayo Clinic in September 2015. Brynn taught with me at Deep Roots Community Farm in 2015 and the activities she helped to design are now being published.

Kalmon, Emily, Educational Studies, "Integrating garden- and farm-based learning into a K-5 science curriculum." (May 2015 - Present). Emily is on our GROW team and has created a module on soil and composting for use in summer farm camps for K-5 students. She is a biology education student co-mentored by Megan Litster and is helping to integrate project-based science learning into the existing curriculum at local elementary schools and to assess its impact on learning.

Eigner, Rachel, Educational Studies, "Integrating garden- and farm-based learning into a K-5 science curriculum." (May 2015 - Present). Rachel is on our GROW team and has created a module on prairies, wildflowers, and pollinators for use in summer farm camps for K-5 students. She is a biology education student co-mentored by Megan Litster and is helping to integrate project-based science learning into the existing curriculum at local elementary schools and to assess its impact on learning. Rachel taught with me at Deep Roots Community Farm in 2015.

Rittenhouse, Daniel, Chemistry, "Oxidative stress response in aging zebrafish." (January 2015 - Present). Dan is a member of our zebrafish team and is measuring the expression level of zebrafish genes related to aging and oxidative stress in response to transgenic modifications of the calmodulin gene.

Good, Zoey, Biology, "Calmodulin redox mutants in transgenic zebrafish." (January 2015 - Present).  
Role: Zoey is co-mentored by myself and a senior scientist (postdoc) in my group.  
Germane Honors: Zoey presented her work at the 2015 Summer Undergraduate Research Poster Session. Zoey is assisting Dr. Driscoll, a volunteer research assistant who is working with me on a mentored research project. Their project is focused on creating the DNA constructs that will be used to create transgenic lines of zebrafish expressing calmodulin redox mutants.

Madrigel, Abel. (May 2014 - Present).

Germane Honors: Abel presented his work at the 2015 Summer Undergraduate Research Poster Session. Abel was my WisCamp student in Summer 2015.

Abel is on our biochemistry team and has worked to purify calmodulin mutants for further structural and biochemical characterization. He plans to learn spectroscopy this year.

Gregory, Andrew, Computer Science, "Computational Simulations of Oxidatively Modified Proteins." (May 2014 - Present).

Germane Honors: Andrew authored a successful undergraduate research and creativity award for Fall 2014.

Andrew has taken the lead on our computational team in 2015 and is now wrapping up loose ends on a project aimed at delineating the conformational changes that occur in calmodulin as a result of calcium binding. Andrew will be helping me to move my supercomputing to UW-L so that we have the option of running calculations locally.

Greenup, Julian, Biology, "Calmodulin Site-Directed Mutagenesis." (May 2014 - Present).

Germane Honors: Julian was my WisCamp student in Summer 2014 and a McNair student in Summer 2015.

Julian presented his work at the 2015 Summer Undergraduate Research Poster Session.

Julian has been involved in both our molecular biology and biochemistry teams. In 2014, he learned site-directed mutagenesis and created some calmodulin mutants for us. In 2015, he expressed and purified many of these mutants. He is currently applying for graduate programs in prosthetic devices.

Goodreau, Kathryn, Chemistry, "Regulation of myosin-X activity through calmodulin light chains." (January 2014 - Present).

Germane Honors: Katy has authored two successful undergraduate research and creativity awards in 2014. She one of only 17 students across the nation to be awarded a prestigious position in the 2015 Summer Biophysics Program, an immersive course and research experience in biophysics at the University of North Carolina. She has put a tremendous effort into helping me to organize Biophysical Society events.

Katy leads the molecular biology team and is heavily involved in coordinating mutagenesis efforts, training new students as they enter my lab, and helping me to manage my group. More recently, she has trained in biochemistry and spectroscopy.

Woods, Chris, Chemistry, "Circular dichroism melting curves for mutant calmodulins." (May 2015 - September 2015).

Chris led efforts to characterize the thermodynamics of calmodulin mutants using circular dichroism. In collaboration with other group members who provided technical support, he completed the characterization of mutants M109Q and M124Q, which are calmodulins with impaired redox sensors. His work will be published in 2015. He started graduate school at the University of Washington in Fall 2015.

Devine, Daniel, Biology, "Computational Simulations of Oxidatively Modified Proteins." (May 2014 - September 2015).

Germane Honors: Dan chaired the student planning committee for the Midwest Biophysical Society meeting at UW-L a Crosse in Fall 2014.

Dan was the senior member of my computational team. He has focused on delineating the conformational transition that occupancies calcium binding and release in calmodulin. He discovered and characterized a new, uncharacterized role of methionine-aromatic amino acid interactions in calcium-induced conformational change in calmodulin. We are currently writing a manuscript based on this work. Dan has moved into a new position at the Wisconsin Institute for Discovery (Madison, WI) in September 2015.

Gallagher, Sean, Chemistry, "Oxidative stress response in aging zebrafish." (January 2015 - May 2015).

Sean was a senior lab member leading efforts to measure the expression level of zebrafish genes related to aging and oxidative stress. He trained with me and was introduced to this project in Bio 436 Fall 2014. He started medical school at the Wisconsin College of Medicine in Summer 2015.

Beck, Marissa, Chemistry, "Measuring protein structure and thermodynamics using circular dichroism." (January 2014 - May 2015).

Germane Honors: Marissa wrote a fantastic, but unfunded proposal for the Dean's Distinguished Fellowship in Spring 2014. Marissa's undergraduate research and creativity proposal was awarded Fall 2015.

Marissa led the biochemistry team and was heavily involved in coordinating protein purification and enzyme assays, and training new students as they entered lab. She most recently helped us to develop protocols for using circular dichroism to measure protein secondary structure and isothermal titration calorimetry to measure protein thermodynamics. She took a position at R & D Systems (Minneapolis, MN) in scientific phone support in Spring 2015.

McCarthy, Megan, Biology, "Expression and purification of calmodulin mutants." (January 2013 - January 2015).

Role: When Megan was at UW-L, I meet with her team weekly to go over their plans and trouble-shoot problems with them. Now that she is at the University of Minnesota, we meet face-to-face monthly and communicate via email weekly in order to discuss her plans.

Germane Honors: Megan presented her work at the annual Biophysical Society meeting in San Francisco in February 2014, the Regional Biophysical Society Networking event in La Crosse in October 2013 and the Minnesota Muscle Symposium in May 2014.

Megan has acted as my lab manager for the past year. She led a team in creating site-directed mutations in muscle proteins, and has expressed and purified these proteins in preparation for structural work. She is currently a graduate student at a collaborator's lab at the University of Minnesota, where I continue to co-advise her thesis work.

Dates and Locations Presented:

Biophysical Society Annual Meeting – Poster. San Francisco, CA. (February 2014).

Regional Biophysical Society Networking Event – Poster. La Crosse, WI. (October 2013).

Minnesota Muscle Symposium – Poster. Minneapolis, MN. (May 2014).

Hernandez, Jesus, Biology, "Calmodulin Site-Directed Mutagenesis." (May 2014 - August 2014).

Germane Honors: Jesus was a summer 2014 WisCamp student. He recently was accepted as a McNair's scholar.

Jesus trained in site-directed mutagenesis during the summer of 2014.

Zwernik, Sam, Biology, "Developing a calmodulin activation of calcineurin phosphatase assay." (January 2014 - June 2014).

Sam worked independently to develop a biochemical assay used to measure the biological activity of our new calmodulin mutants. He also created several new site-directed mutants.

Olenek, Michael, Biology, "Computational Simulations of Oxidatively Modified Proteins," In-Process. (January 2013 - June 2014).

Germane Honors: Michael will be presenting her work at the annual Biophysical Society meeting in San Francisco in February 2014, as well as the Regional Biophysical Society Networking event in La Crosse in October 2013.

Michael led my computational biophysics team. He (1) successfully completed hundreds of nanoseconds of computational molecular dynamics simulations for the protein calmodulin and its mutants and (2) developed analysis methods that will allow us to directly compare experimental results to computational predictions of protein motions. In the process of carrying out his project he helped me to write detailed protocols for new students. He has also trained extensively in pulsed EPR techniques at the Minnesota Biophysical Spectroscopy facility. Michael has been accepted into a graduate program at Colorado State University.

Dates and Locations Presented:

Biophysical Society Annual Meeting – Poster. Philadelphia, PA. (February 2013).

Biophysical Society Annual Meeting – Poster. San Francisco, CA. (February 2014).

Regional Biophysical Society Networking Event – Poster. La Crosse, WI. (October 2013).

UW-L's Annual Celebration of Research and Creativity – Poster. La Crosse, WI. (April 2014).

Gustafson, Maxine, Biology, "Expression and purification of calmodulin mutants." (September 2013 - January 2014).

Role: I meet with my biochemistry team weekly to discuss plans and trouble-shoot problems. Maxine dabbled in site-directed mutagenesis until she graduated.

Reuter, Mitch, Biology, "Dynamic light scattering to detect changes in protein shape." (January 2013 - January 2014).

Mitch led the protein biochemistry in my group. He was involved in purifying muscle proteins, labeling them for spectroscopy experiments, and traveling with me to regional facilities to acquire data. Mitch acquired a complete dynamic light scattering dataset for calmodulin mutants, which has been included in a manuscript submitted for publication in the journal Biochemistry.

Wellnitz, Hilary, Biology, "Site-directed calmodulin mutants." (January 2013 - September 2013).

Hilary co-leads a team that is creating site-directed mutations in calmodulin and other muscle proteins in order to create labeling sites for spectroscopy experiments. A large component of her work is training in less experienced students.

Koepke, Carson, Other (Outside University of Wisconsin-La Crosse), "Computational Simulations of Myosin Glutathionylation." (January 2011 - August 2013).

Role: Carson is an undergraduate research student from St. Olaf College, where I previously taught. Last summer, Carson was in my lab. This summer, he will be working in Tom Burghardt's lab (Mayo Clinic) on a collaborative project involving myosin oxidative modifications. Carson will provide a human link between our labs that will catalyze a joint project.

Carson helped me to develop a purification protocol of calmodulin and has carried out biochemical assays for determining the impact of oxidation on actomyosin interaction. This fall, Carson developed computational parameters for glutathionylated myosin. This summer, Carson will bring his knowledge of protein oxidation to the Mayo Clinic so that we can pursue a joint project aimed at understanding how myosin motility is effected by oxidation of myosin's regulatory light chains.

Abdella, Ryan, Other (Outside University of Wisconsin-La Crosse), "Molecular Dynamics Simulations of Oxidized Calmodulin." (January 2010 - August 2013).

Role: Ryan was a senior undergraduate student at St. Olaf College, where I previously taught. I helped Ryan to complete his Honor's Thesis written report and oral presentation while I was in my first year at UWL.

Ryan helped me to develop computational methods for modeling methionine oxidation in muscle proteins. Ryan is currently pursuing his PhD in biophysics at Northwestern University.

Boerner, Amanda, Biology, "Calmodulin-like protein expression and purification." (January 2013 - June 2013).

Amanda is helping me to express a calmodulin-like protein in preparation for structural characterization.

Schmidtke, Derek, Biology, "Site-directed calmodulin mutants." (January 2013 - June 2013).

Role: I meet with Derek weekly and help him and his team generate a plan for the week.

Germane Honors: Derek applied for the Dean's summer fellow program.

Derek is a first-year student engaged in using molecular biology techniques to create site-directed calmodulin mutants. Right now, he assists more senior students in this work.

## V. SERVICE

### A. Service

#### Department Service

Curriculum Committee, Member. (September 2015 - Present)

Brings important changes to the biology curriculum to the department for discussion and consideration.

Quantitative Skills Across the Curriculum Committee, Member. (January 2015 - Present)

Assessment of quantitative and computational skills across the biology core, and implementation of changes to increase learning gains in specific areas.

Writing Committee, Member. (September 2014 - Present)

Bio 105 Committee, Member. (February 2013 - Present)

This committee meets to clarify Bio 105 learning objectives, to enhance teaching materials, and discuss teaching approaches.

Search and Screen for Quantitative Biologist, Chair. (October 2015 - May 2016)

In fall 2015, we have initiated a search and screen for a quantitative biologist to assist in the quantitative skills across the curriculum project and to teach biostatistics.

Search and Screen for Biology Education, Member. (September 2014 - May 2015)

Hire a biology education faculty member.

#### College Service

Undergraduate Travel and Research Requests, Member. (September 2015 - Present)

Distribute funding for student travel and research requests.

Seminar Series: Institute of Biomolecular Sciences, Co-director. (September 2013 - Present)  
Co-developed and co-managed a new interdepartmental seminar series in the molecular biosciences.

Dean's Distinguished Fellowship Seminar Series, Chair. (2014 – 2015)  
Directed the summer seminar series and acted as a point of contact for students and faculty in the DDF program.

2015 Summer Undergraduate Celebration of Research and Creativity, Chair. (2014 - 2015)  
Organized the summer undergraduate poster session, including hosting a speaker and creating an abstract book.

Search and Screen for Instrumentation Innovator, Member. (January 2014 - January 2015)  
Searched for and hired an interdepartmental Instrumentation Innovator.

2014 Midwest Biophysical Society Annual Meeting, Chair. (October 2014)  
Led the organizing committee for the Midwest Biophysical Society Meeting.

2013 Midwest Biophysical Society Annual Meeting, Chair. (October 2013)  
Led the organizing committee for the Midwest Biophysical Society Meeting.

## **University Service**

### **1. Committee Involvement**

Student Organization, Member. (September 2013 - September 2015)  
We met to discuss budgets related to student fees, the use of student buildings, and policies relating to buildings.

### **2. Administrative Assignments**

## **Professional and Community Service**

### **1. Consulting/board of directors**

Public/Community, GROW La Crosse, Board of Directors of an Organization, Member, approximately 200 hours spent for the year, Yes, appointed, Pro Bono, Regional. (January 2015 - Present).  
I am currently on the board and programming committee for a nonprofit called GROW La Crosse, which focuses on creating active science learning environments in gardens and farms within the school curriculum. I have undergraduate biology education majors to work with me to develop the curriculum for GROW and to deliver content in schools and camps.

### **2. Other professional and community service**

Professional, Biophysics Education and Research Network, Program Organizer, approximately 100 hours spent for the year, No, neither, Pro Bono, National. (January 2014 - Present).  
I am the lead organizer of an initiative to connect biophysicists at every stage in their career through a web interface that allows them to share instrumentation, mentorship, and educational materials. The Biophysical Society currently has the design for the web interface and is building a prototype.

## **Service Presentations**

Klein, Jennifer, "GROW La Crosse", Psychology, UWL. (September 2015).  
I introduced GROW La Crosse's mission and needs to two sections of a 300-level psychology class in order to recruit students as volunteers.

Cooper, Scott T (Moderator), Klein, Jennifer (Panelist), Beaujot, Ariel (Panelist), Murray, James (Panelist), "Panel discussion on incorporating research activities into a course.", Center for the Advancement of Teaching and Learning, Centennial Hall. (January 21, 2014).  
Assessment of UW-L undergraduate research activities revealed that 75% of these experiences occur in

a course. Our panel will discuss the advantages and disadvantages of methods they have used to embed research projects in a variety of courses including HIS102, BUS230, HIS320, and BIO436.

## Professional Memberships

American Society for Biochemistry and Molecular Biology, International. (January 2013 - Present).

Biophysical Society, Directed Biophysics Regional Networking Event in MN (2011), WI (2014), International. (January 2008 - Present).

## Grants

Klein, Jennifer (Principal), Hawkins, Taviare (Co-Principal), Grilley, Daniel (Co-Principal), "Creation of a Midwest Biophysics Network" (Funded), External Grant, Sponsored by UW-L Foundation Small Grant, \$3000. (May 1, 2014 - June 30, 2015).

[Download File \(jklein/congrant\\_service/01\\_UWF\\_Application\\_SUBMIT2014-1-1.pdf\)](#)

Klein, Jennifer, Grilley, Daniel, Hawkins, Taviare, "Biophysical Society Regional Networking Event" (Funded), Sponsored by UW-L Foundation, \$4000. (May 1, 2013 - June 30, 2014).

[Download File \(jklein/congrant\\_service/UWF\\_Application2013-1-1.pdf\)](#)

Klein, Jennifer (Co-Principal), Grilley, Daniel (Co-Principal), Wilker, Peter (Co-Principal), "Growth Agenda for Wisconsin Grant Program" (Not Funded), UW System Grant, \$20300.

[Download File \(dgrilley/congrant\\_service/UWS\\_CPDG\\_UW-L\\_Klein\\_Full\\_Application\\_Final-1.pdf\)](#)

Klein, Jennifer (Principal), Grilley, Daniel (Co-Principal), Hawkins, Taviare (Co-Principal), "Biophysical Society Mini Award" (Funded), External Grant, Sponsored by Biophysical Society, \$500. (October 2014).

Klein, Jennifer (Principal), Grilley, Daniel (Co-Principal), Hawkins, Taviare (Co-Principal), "Biophysical Society Mini Award" (Funded), External Grant, Sponsored by Biophysical Society, \$500. (October 2013).

## B. Additional Service Evidence

SE1: Description of the goals and design of a biophysics education and research network in the Midwest.

[Download File \(jklein/promotion/SE1\\_BiophysicsNetwork-1.pdf\)](#)

SE2: Presentation of the GROW La Crosse mission and results from the 2014-2015 year.

[Download File \(jklein/promotion/SE2\\_2015\\_GROW\\_Presentation-1.pdf\)](#)

## VI. ADDITIONAL INFORMATION

### A. Faculty Development

#### Other Activities

Scholarship/Research, Attended Conference, "Milwaukee Biophysical Society Networking Event," Milwaukee School of Engineering, Milwaukee, WI, United States. (March 2014).

Teaching, I was on a discussion panel, "2014 Winter UWL Conference on Teaching & Learning," CATL UW-L, La Crosse, WI, United States. (January 2014).

Teaching, Workshop, "ASBMB Regional Meeting," American Society of Biochemistry and Molecular Biology, La Crosse, WI, United States. (November 9, 2013).

Teaching, Workshop, "Backwards Design—Understanding by Design," Center for Advancing Teaching and Learning (CATL), La Crosse, WI, United States. (February 27, 2013).

Teaching, Workshop, "Writing and Critical Thinking: A Case Study," Center for Advancing Teaching and Learning (CATL), La Crosse, WI, United States. (February 14, 2013).

**B. Pre UW-L CV Link**

[Download File \(jklein/promotion/CURRENT\\_Klein\\_CV-1.pdf\)](#)