

## **Oral and Poster Presentations by Undergraduate Students in YSU's MBUR Program at Regional, National and International Meeting:**

Lisa Curll presented her research on population extinction, at the regional Pi Mu Epsilon student Conference at Youngstown State University on February 21, 2009.

1. Lisa CURLL. Oral presentation: 'To Save a Species' Her supervisors were Dr. Ritchey (mathematics) and Dr. Renne (biology).

Moriah Wright attended the OHIO section meeting of MAA at Bowling Green State University, Bowling Green, OH, April 3-4, 2009, and gave an oral presentation.

2. Moriah WRIGHT. Oral presentation: 'Investigation of Neuronal Activity in a 2-Dimensional Dynamical System Model'. Her supervisor was Dr. Jalics (mathematics).

Hillary Howard attended the Ohio Branch of the American Society for Microbiology meeting in Granville, OH on April 4, 2009, and made a poster presentation.

3. Hillary HOWARD 'Partial Sequence of a selenite resistance determinant in *Enterobacter cloacae*.' Her faculty advisor was Dr. Caguiat (biology).

Zane Kalik attended the Annual American Society for Microbiology Conference (ASM) on May 17-21, 2009 in Philadelphia, PA. Zane gave a poster presentation.

4. Zane KALIK 'Effect of Carbonyl Cyanide m-Chlorophenylhydrazine (CCCP) on Microbial Activity in Historically Contaminated River Sediment.' Dr. Johnston (biology) was his faculty advisor.

The final presentations by students of their summer MBUR projects were given on July 24, 2009 at YSU. Approximately 40 students and faculty attended these end of summer presentations. The MBUR -2009 participants and presentations:

5. Christina EMANUEL and Kristi MRAZ - "Selenium Metabolism in *Stenotrophomonas maltophilia*".
6. Lisa CURLL and Hillary HOWARD - "Modeling Selenite Resistance in *Enterobacter* sp. YSU"
7. Josh MIKE, Robert PARISE and Katie YAZVAC - "Mechanisms of Senktide-induced Depolarization of Pyramidal Cells".
8. Zane KALIK and Moriah WRIGHT - "Sex and Regional Differences in Calcium Regulators of Cardiac Myocytes in the Formation of Arrhythmias".

**MathFest 2009** - Four YSU MBUR students attended the summer annual meeting of the Mathematical Association of America (MAA) and Pi Mu Epsilon (PME) in Portland, Oregon on August 5-8, 2009 and gave oral presentations. Two students received awards for excellence in student exposition and research.

<http://www.pme-math.org/conferences/national/2009/presentations2009.html>

9. Moriah WRIGHT, "Mathematical Modeling of Cardiac Myocytes" (Prize-winning Pi Mu Epsilon student presentation).
10. Joshua MIKE, "Modeling Senktide Response to Pyramidal Neuron"

11. Kristi MRAZ, "Modeling Selenium Metabolism in Bacteria"
12. Lisa CURLL, "Bacterial Resistance" (Prize-winning Pi Mu Epsilon student presentation).

Seven undergraduate students attended the first annual Undergraduate Research Conference at the Interface of Biology and Mathematics hosted by the National Institute for Mathematical and Biological Synthesis (NIMBioS) on October 23-24, 2009 in Knoxville, TN. YSU undergraduate student presenters and titles of talks or posters:

<http://www.nimbios.org/press/URConference.html>

13. Lisa CURLL and Hillary HOWARD. Oral presentation: "Analysis of Bacterial Response to Toxic Selenite in *Enterobacter* sp. YSU."
14. Hillary HOWARD and Lisa CURLL. Poster presentation: "Sequencing and Modeling of a Selenite-Sensitive Mutant of *Enterobacter* sp. YSU."
15. Christina EMANUEL and Kristi MRAZ. Poster presentation: "Cysteine Enhancement of Selenite Resistance in *Stenotrophomonas maltophilia* ORO2."
16. Moriah WRIGHT and Zane KALIK. Oral presentation: "Cardiac Arrhythmias: The Role of Sex and Regional Differences in L-Type Calcium Current Levels."
17. Zane KALIK and Moriah WRIGHT. Poster presentation: "Sex and Regional Differences in L-Type Calcium Current Levels in Rabbit Heart Arrhythmogenesis."
18. Joshua MIKE, Kathryn YAZVAC and Robert PARISE. Oral presentation: "The Senktide Effect on the Dynamics of Pyramidal Neurons."
19. Robert PARISE, Joshua MIKE and Kathryn YAZVAC. Poster presentation: "The Effects of Senktide on Layer V Pyramidal Neurons of the Prefrontal Cortex."

Hillary Howard attended and presented her research at the *Annual Biomedical Research Conference for Minority Students* (ABRCMS-09) on November 4-7, 2009 in Phoenix, Arizona.

20. Hillary HOWARD and Jonathan Caguiat. Poster Presentation: "Identification of a Selenite Resistance Determinant Using Transposon Mutagenesis".

Zane Kalik, Cassandra Doinoff and Carl Sims attended and presented their research at the Biophysical Society 54th Annual Meeting, February 20-24, 2010 in San Francisco, CA

21. Cassandra M. Doinoff, Zane M. KALIK, Moriah E. WRIGHT, Jozsi Z. Jalics and Carl Sims  
Abstract Publication and Poster Presentation, (2010) *Biophysical Journal*, 98 (3) (s1) 530a: "Gender and Regional Differences in Ical Distribution in Adult Rabbit Right Ventricle Influence Action Potential Duration and the Propensity for EADs in a Model of Long QT Syndrome Type 2".

Three students gave talks at the regional student conference organized by the YSU student chapter of Pi Mu Epsilon on February 27, 2010 at Youngstown State University. They were part of a special session in Mathematical Biology at this conference.

22. Moriah WRIGHT, "Mathematical Modeling of Cardiac Myocytes".
23. Joshua MIKE, "The Senktide Effect on the Dynamics of Pyramidal Neurons".
24. Lisa CURLL, "Response to Toxic Metals - The Process of Survival".

Six students gave presentations at Quest 2010: A Forum for Student Scholarship at Youngstown State University held on April 6, 2010.

25. Joshua MIKE and Robert PARISE, "The Effects of NK3 Activation on the Dynamics of Layer V Pyramidal Neurons of the Prefrontal Cortex" (poster presentations).
26. Zane KALIK, WRIGHT, M., Doinoff, C., "Sex and Regional Differences in L-Type Calcium Current Levels in Rabbit Heart Arrhythmogenesis" (oral presentations).
27. Hillary HOWARD and Lisa CURLL, "Proposed Resistance Mechanisms of Enterobacter sp. to Toxic Selenite" (oral presentations).
28. Joshua MIKE and Robert PARISE, "The Effect of NK3 Activation on the Dynamics of Layer V Pyramidal Neurons of the Prefrontal Cortex" (oral presentations).

Hillary Howard and Jon Caguiat attended and presented their research results at the Ohio Branch American Society for Microbiology Meeting, April 16-17, 2010 in Mason, OH.

29. HOWARD, H. and J. Caguiat (2010). "Partial sequence of a selenite resistance determinant" (oral presentations).

Lisa Curll was one of nine students nation wide selected to receive a 2010 National Institute for Mathematical and Biological Synthesis/Undergraduate Biology and Mathematics award to attend a national symposium on quantitative biology undergraduate education, "Beyond BIO2010 Celebrations and Opportunities Symposium" on May 21 and 22, 2010 in Washington, D.C. <http://bioquest.org/beyondbio2010/>

30. Lisa CURLL, Hillary HOWARD, Jonathan Caguiat and George Yates. "Mathematical Modeling of a Selenite-Sensitive Mutant of Enterobacter sp. YSU", (poster presentation).

Hillary Howard, Jon Caguiat and Chet Cooper attended and presented research results at the American Society for Microbiology General Meeting, San Diego, CA on May 23-28, 2010.

31. H.A. HOWARD, L. CURLL, G.T. Yates and J.J. Caguiat. "Identification of a Selenite Resistance Determinant in Enterobacter sp. YSU Using Transposon Mutagenesis". (poster presentation: Q-2826:859).

The final presentations by students of their summer MBUR projects were given on July 23, 2010 at YSU. Approximately 30 students and faculty attended these end of summer presentations. The MBUR -2010 participants and presentations:

32. Sepideh KHAVARI and Ben BELCIK - "Regulation of Gene Expression in the Presence of Selenite in E. coli".
33. Robert PARISE and Randi YAZVAC - "Patterns of Chitin Synthase Gene Expression in Human Fungal Pathogen Penicillium marneffeii".
34. Lisa CURLL and Lindsay BLAZSEK - "Modeling a Riparian Ecosystem and Land-form Dynamics".
35. Zane KALIK and Josh MIKE - "Sex and Regional Differences in L-type Calcium Current Response to  $\beta$ -Adrenergic Stimulation and Resultant Arrhythmia Sensitivity".

Four MBUR students attended and gave presentations at the summer annual meeting of the Mathematical Association of America (MAA) and Pi Mu Epsilon (PME) **MathFest 2010** in Pittsburgh, PA, August 4-7, 2010. All students gave excellent presentations at this national meeting, and two students won awards for their talks.

<http://www.pme-math.org/conferences/national/2010/presentations2010.html>

Students attending and making presentations:

36. Lisa CURLL, "Mathematical Modeling of Riparian Ecosystems and Land-form Dynamics". (Award for outstanding exposition and research in environmental mathematics sponsored by the MAA Special Interest Group in Environmental Mathematics.)
37. Sepideh KHAVARI, "Modeling Gene Expressions in the Presence of Toxic Selenite in *E. coli*". (Pi Mu Epsilon award for excellence in student exposition and research.)
38. Josh MIKE, "Response to  $\beta$ -Adrenergic Stimulation in Rabbit Cardiac Myocytes".
39. Randi YAZVAC, "Model of Chitin Synthase Gene Expressions".

Six undergraduate students and two faculty members attended the second annual Undergraduate Research Conference at the Interface of Biology and Mathematics hosted by the National Institute for Mathematical and Biological Synthesis (NIMBioS) on November 19-20, 2010 in Knoxville, TN. The conference featured student talks and student posters by undergraduates in biology, mathematics, computer science and related fields.

[http://www.nimbios.org/education/undergrad\\_conf2010](http://www.nimbios.org/education/undergrad_conf2010)

YSU undergraduate student presenters and titles of talks or posters:

40. CURLL, L. and L. BLAZSEK. Oral presentation. Mathematical Modeling of Stochastic Riparian Ecosystems.
41. KHAVARI, S and B. BELCIK. Oral presentation. Modeling the Regulation of Gene Expression in the Presence of Selenite in *E.coli*.
42. PARISE, R, YAZVAC, R., Cooper, C. and G. Yates. Oral presentation. Patterns of chitin synthase gene expression in the thermally dimorphic fungal pathogen *Penicillium marneffeii*.
43. MIKE, J. and Z. KALIK. Poster presentation. Modeling Arrhythmia Vulnerability: Right Ventricular Sex and Regional Differences in Calcium Current Levels.
44. BLAZSEK, L. and L. CURLL. Poster presentation. Statistically Categorizing Landform Distribution in an Eastern Riparian Ecosystem.

Three students gave talks at the regional student conference organized by the YSU student chapter of Pi Mu Epsilon on February 26, 2011 at Youngstown State University. They were part of a special session in Mathematical Biology at this conference.

45. Sepideh KHAVARI, "Modeling of Regulation of Gene Expressions in the Presence of Toxic Selenite in *E. coli*".
46. Joshua MIKE, "Mathematical Modeling of Cardiac Action Potentials and Associated Arrhythmia Vulnerability".
47. Lisa CURLL, "Stochastic Riparian Ecosystems: A Differential Equation Model".

One student, Zane Kalik, gave a poster presentation at the 55<sup>th</sup> Annual Meeting of the Biophysical Society, March 5-9, 2011 in Baltimore, Maryland.

48. KALIK ZM, MIKE JL, Doinoff CM, WRIGHT ME, Jalics JZ, Womble, MD and Sims C. "Sex and Regional Differences in Rabbit Right Ventricular L-Type Calcium Current Levels and Mathematical Modeling of Arrhythmia Vulnerability"

Two students gave talks and presented posters at the NSF UBM-PI meeting at Colorado State University, Fort Collins, CO on March 11-12, 2011.

49. Lisa CURLL, "Stochastic Riparian Forest Dynamics: A Differential Equation Model".  
50. Joshua MIKE, "Mathematical Modeling of Arrhythmia Vulnerability in Rabbit Right Ventricular Myocytes".

Lisa Curll presented her MBUR research at the Ohio Section meeting of MAA at Youngstown State University, Youngstown, OH, March 25-26, 2011.

51. Lisa CURLL and Lindsay BLAZSEK, "A Differential Equation Model for Stochastic Riparian Ecosystems".

Two students jointly presented a poster at QUEST a Form for Student Scholarship on April 5, 2011 at Youngstown State University.

52. Zane KALIK, Joshua MIKE, Cassandra Doinoff and Moriah WRIGHT, "Sex and Regional Differences in Rabbit Right Ventricular L-Type Calcium Current Levels and Mathematical Modeling of Arrhythmia Vulnerability".

The final presentations by students of their summer MBUR projects were given on July 29, 2011 at YSU. Approximately 30 students and faculty attended these end of summer presentations. The MBUR -2011 participants and presentations:

53. Gabrielle COLLIER, Robert DEVITA, Kevin MCLANE and Bradley SLABE - "Mathematical Modeling and Data Analysis of the Growth and Butanol Production of *Clostridium beijerinckii*".  
54. Emilie HALL, Mark RADETIC and Tara SANSOM – "A Look into the Proteins Involved in the Selenite Resistance of *Stenotrophomonas maltophilia* ORO2".  
55. Joseph COPPLOE, Jenna HALLAPY and Samuel JACOBOWITZ - "Tachykinin Modulation of Prefrontal Cortex Neuronal Activity".

Three MBUR students attended and gave presentations at the summer annual meeting of the Mathematical Association of America (MAA) and Pi Mu Epsilon (PME) **MathFest 2011** in Lexington, KY, August 3-6, 2011. All students gave excellent presentations at this national meeting, and one student won an award for her talk.

<http://www.pme-math.org/conferences/national/2011/presentations2011.html>

Students attending and making presentations:

56. Tara SANSOM, "Differential Equation Model of the Metabolism of Toxic Metals in Bacteria".  
57. Bradley SLABE, "Mathematical Model of Acetone-Butanol-Ethanol Fermentation by *Clostridium beijerinckii*".

58. Sepideh KHAVARI, "Theoretical Framework and Analysis of Time-to-Peak Response in Biological Systems" (Janet L. Andersen Award for outstanding exposition and research in Mathematical or Computational Biology sponsored by the MAA Special Interest Group in Mathematical Biology).

Zane Kalik attended and gave a poster presentation at the Third Annual Midwest/Great Lakes Undergraduate Research Symposium (mGluRs), Wooster College, OH. Sept. 2011.

59. Kalik, Z., Mike, J., Doinoff, C., Jalics, J., and Womble, M., Sims, C., and Salama, G. "Regulation of the L-type calcium current by sex steroids: A mechanism for increased arrhythmia vulnerability in the female heart".

Sepideh Khavari attended and gave an oral presentation on her research at the Annual Mathematics Conference on "The Mathematics of Finance" and Pi Mu Epsilon "Student Conference" at Miami University in Oxford, Ohio on September 30- October 1, 2011.

60. Sepideh KHAVARI, "A Theoretical Framework for Time-to-Peak Response in Biological Systems".

Seven undergraduate students and two faculty members attended the third annual Undergraduate Research Conference at the Interface of Biology and Mathematics hosted by the National Institute for Mathematical and Biological Synthesis (NIMBioS) on October 21-22, 2011 in Knoxville, TN. The conference featured student talks and student posters by undergraduates in biology, mathematics, computer science and related fields.

[http://www.nimbios.org/education/undergrad\\_conf2011](http://www.nimbios.org/education/undergrad_conf2011)

YSU undergraduate student presenters and titles of talks or posters:

61. Mark RADETIC, Tara SANSOM and Emilie HALL presented a poster "Modeling the Growth of *S. maltophilia* O2 in the Presence of Selenite with a Look at Protein Expression".
62. Bradely SLABE, Bobby DEVITA and Kevin MCLANE presented a poster "Mathematical Modeling and Data Analysis of the Growth and Acetone, Butanol, Ethanol (ABE) Production of *Clostridium beijerinckii*".
63. Jenna HALLAPY, Joe COPPLOE and Sam JACOBOWITZ presented a poster "Tachykinin Modulation of Prefrontal Cortex Neuron Activity".
64. Sepideh KHAVARI gave an oral presentation "Mathematical Modeling and Analysis of Time-to-Peak Response in Biological Systems".

One student gave a talk at the regional student conference organized by the YSU student chapter of Pi Mu Epsilon on February 25, 2012 at Youngstown State University.

65. Bradely SLABE gave an oral presentation "Mathematical Modeling of Acetone-Butanol-Ethanol Fermentation by *Clostridium beijerinckii*".

Nine students gave presentations at Quest 2012: A Forum for Student Scholarship at Youngstown State University held on April 3, 2012.

66. Robert DEVITA, Bradley SLABE, Kevin MCLANE (poster presentation). "Growth and Acetone, Butanol, Ethanol (ABE) Production of *Clostridium beijerinckii*: Mathematical Modeling and Data Analysis".

67. Jenna HALLAPY, Joe COPPLOE, Sam JACOBOWITZ, Jozsi Jalics (poster presentation). "Tachykinin Modulation of Prefrontal Cortex Neuron Activity".
68. Zane KALIK (poster presentation). "Regulation of the L-Type Calcium Current by Sex Steroids: A Mechanism for Increased Arrhythmia Vulnerability in the Female Heart".
69. Mark RADETIC, Emilie HALL, Tara SANSOM (oral presentation). "Modeling the Growth of *S. maltophilia* O2 in the Presence of Selenite with an Initial Analysis of Protein Expression".

Two students gave poster presentations at the Ohio Branch of the American Society of Microbiology, April 20-21, 2012 Cincinnati, OH. Students presenting posters:

70. Robert DEVITA, Bradley SLABE, Kevin MCLANE, "Growth and Acetone, Butanol, Ethanol (ABE) Production of *Clostridium beijerinckii*: Mathematical Modeling and Data Analysis".
71. Mark RADETIC, Emilie HALL, Tara SANSOM, "Modeling the Growth of *S. maltophilia* O2 in the Presence of Selenite with an Initial Analysis of Protein Expression".

Three MBUR students attend the Annual Summer Meeting of the Mathematical Association of America (MAA) and Pi Mu Epsilon (PME), MathFest 2012, in Madison, WI, August 1-4, 2012. All students gave excellent presentations at this national meeting, and one student won an award for her talk.

<http://www.pme-math.org/conferences/national/2012/presentations2012.html>

Students attending and making MBUR presentations:

72. Matthew PIERSON, "Mathematical Modeling of Selenium Metabolism".
73. Estee GEORGE, "Mathematical Model for Butanol Fermentation." (Janet L. Andersen Award for outstanding exposition and research in Mathematical or Computational Biology sponsored by the MAA Special Interest Group in Mathematical Biology).

Four MBUR YSU students attended the 2012 Annual Meeting of the Society of Mathematical Biology which was hosted by the National Institute for Mathematical and Biological Synthesis (NIMBioS) at the University of Tennessee-Knoxville on July 25-28, 2012. More information can be found at the conference web site <http://www.nimbios.org/SMB2012/>

The YSU students presented the following research projects:

74. Sarah RITCHEY, Estee GEORGE and Robert DeVITA presented a poster "Modeling Butanol Production by *Clostridium beijerinckii*".
75. Joelle BALLONE, Matt PIERSON and Mark RADETIC presented a poster "Mathematical Modeling of Growth and Selenium Metabolism of *S. maltophilia* O2."

Zane Kalik attended and gave an oral presentation at the Fourth Annual Midwest/Great Lakes Undergraduate Research Symposium (mGluRs), Wooster College, OH. Sept. 2012.

76. Kalik, Z., Mike, J., Jalics, J., Salama, G., and Womble, M. "Regulation of the L-type calcium current by sex steroids: A mechanism for increased arrhythmia vulnerability in the female heart".