

SURE

Summer Undergraduate Research Experience

WINTHROP UNIVERSITY



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Summer Undergraduate Research Experience

The Winthrop University Summer Undergraduate Research Experience (SURE) provides undergraduate science and mathematics students with eight to ten weeks of intensive research training under the guidance of Winthrop faculty mentors. In addition to hands-on work on their individual projects, students participate in research group meetings to deepen their understanding of their fields and attend seminars by visiting speakers to broaden their exposure to STEM research. At the culmination of the summer experience, students deliver formal oral presentations on their projects in the SURE summer symposia and prepare abstracts and posters that are published and presented to the community each fall. Collectively, these activities immerse undergraduates in cutting-edge research, engaging them in creating and disseminating new knowledge, and preparing them for additional professional development opportunities, including conference presentations, student-coauthored publications, and successful transitions to employment and post-graduate study.

Now in its 11th year, SURE 2016 has engaged 58 undergraduate participants, mentored by 21 science and mathematics faculty members. In total, their work spans the fields of biology, biochemistry, chemistry, environmental science, materials science, and mathematics; representative research topics are listed to the right.



SURE 2016 Poster Session
Friday, Sept. 16, 2016,
2-4 p.m.
Richardson Ballroom,
DiGiorgio Campus Center

More than 50 students will be on hand to present their work in this culminating event of SURE 2016. The poster-session format provides an informal venue in which to chat with students and faculty mentors about their research, broader experiences at Winthrop, and plans for the future. The event is open to the public; light refreshments will be provided.

- A Modified Sphingosine Kinase Inhibitor for Improved Chemotherapeutic Activity In Vivo
- Acellular Muscle Matrix Scaffolds for Skeletal Muscle Tissue Engineering
- Aqueous Synthesis of Zinc Oxide Nanoparticles from Chloride and Acetate Salts
- Cardiac-Specific Gene Editing Using CRISPR-Cas9
- Circadian Timing of the Cell Cycle in *Aeolosoma hedleyi*
- Cloning Novel Variants of *hmg1a* to Understand the Role of Arginines in DNA Binding
- Cryptic Speciation in the Meiofaunal Flatworm *Paramonotus*
- Determining Metal-Buffer Affinities and Enthalpies for Study of Metalloregulatory Proteins
- Effect of Bacterial Infection on Stiffness of Cortical Bone
- Enhancing Myogenic Potential of Adipose-Derived Stem Cells
- Evolution of the Male Copulatory Organ in Schizorhynchia (Platyhelminthes)
- Expression and Purification of a Novel Calcium Binding Protein from *Xanthomonas* Species
- Expression and Purification of *AvrGf2* from *Xanthomonas fuscans* ssp. *aurantifolia*
- Expression, Purification and Crystallization of Recombinant Human Phosphodiesterase 11A
- Hadwiger Number of Kneser Graphs and Subgraphs of Kneser Graphs
- Inhibiting Aggregation of Alzheimer's Amyloid- β Peptide
- Investigating the Regulation of Meiotic Crossing Over
- Investigating Trabecular Bone: A 3D Printed Model Study
- Investigation of *Lpar4* in Chick Retinal Axon Growth Cone Responses to LPA by siRNA Inhibition
- Matching and Fractional Matching Number of Divisor Graphs
- Mathematical Models of the Cancer Stem Cell Hypothesis
- Mechanical Properties of the Femur
- Molecular Approaches to Community Analysis in Marine Meiofauna
- Morphological and Molecular Approaches to Community Ecology in High-School Biology
- Murine Adipose-Derived Stem Cells with Inducible Oct4 Expression
- Phytoremediation of Copper, Zinc, Nickel and Chromium Using Various Grasses
- Probing LPA as an Axon Guidance Molecule in Chick Retinal Ganglion Cells by Autotaxin siRNA
- Understanding the Therapeutic Role of EF24 and HMGA1 Proteins in Colon Cancer
- Visible-Light Promoted Carbon-Carbon Bond Formation