

**Indiana University – International Summer Undergraduate Research Program
(IU-ISURP)****Summer Research Experience 2018****Position Description**

Professor's Name	Silas Cook
Department	Chemistry
Lab website	http://www.indiana.edu/~cooklab/index.php
Position Description	The student will synthesize a series of small molecules to test as substrates for new catalysts developed in the group. Sensitive organic chemistry techniques will be used for setting up organic and organometallic reactions, working them up, and purifying and analyzing the desired products from the reactions.
Desired Skills & Background	A good knowledge of basic organic chemistry. Some experience in organic synthesis or organometallic chemistry is necessary.

**Indiana University – International Summer Undergraduate Research Program
(IU-ISURP)**

Summer Research Experience 2018

Position Description

Professor's Name	David Daleke
Department	Medical Sciences / Biochemistry and Molecular Biology
Lab website	http://mypages.iu.edu/~dldlab
Position Description	<p>This project is a study of novel proteins that transport lipids across membrane bilayers. These proteins regulate the organization of lipids in biological membranes.</p> <p>The student will express, using the baculovirus expression system, candidate aminophospholipid transporters and purify the proteins by affinity chromatography. Purified proteins will be reconstituted and lipid transport activity will be measured.</p>
Desired Skills & Background	A good knowledge of basic biochemistry. Some experience in protein purification, enzymology, or membrane biology will be helpful.

**Indiana University – International Summer Undergraduate Research Program
(IU-ISURP)**

Summer Research Experience 2018

Position Description

Professor's Name	Amar Flood
Department	Chemistry
Lab website	http://www.indiana.edu/~floodweb/
Position Description	<p>The summer project involves the preparation and study of cyanostar macrocycles and polymers for binding anions.</p> <p>See related paper: Nature Chemistry, 2013, 5, 704</p> <p>The student will synthesize new receptors, and characterize their ability to bind different anions.</p>
Desired Skills & Background	Good experience with synthetic organic chemistry. Some experience with NMR and UV-Vis spectroscopy would be useful.

**Indiana University - Tsinghua University
Summer Research Experience 2018
Position Description**

Professor's Name	David P. Giedroc
Department	Chemistry
Lab website	http://www.indiana.edu/~dpglab/
Position Description	This project is to study the manganese (Mn) metalloregulatory protein, PsaR, from the gram positive pathogen <i>Streptococcus pneumoniae</i> . Comparative Mn and Zn binding properties will be carried out, in addition to in vitro transcription studies.
Desired Skills & Background	A good knowledge of basic protein purification will be helpful, but not required.

**Indiana University – International Summer Undergraduate Research Program
(IU-ISURP)
Summer Research Experience 2018
Position Description**

Professor's Name	Peter Hollenhorst
Department	Medical Sciences / Biochemistry and Molecular Biology
Lab website	http://hollenhorstlab-iu.strikingly.com/
Position Description	<p>This project is a study of the role of ETS family transcription factors in prostate cancer.</p> <p>The student will express and purify various ETS family transcription factors to study specificity of protein-protein interactions. The student may also do some molecular cloning of new expression constructs.</p>
Desired Skills & Background	An interest in protein biochemistry and skills in general lab techniques such as culturing bacteria and pipetting.

**Indiana University – International Summer Undergraduate Research Program
(IU-ISURP)**

Summer Research Experience 2018

Position Description

Professor's Name	Scott Michaels
Department	Biology
Lab website	https://biology.indiana.edu/about/faculty/michaels-scott.html
Position Description	<p>A longstanding interest in my laboratory is the regulation of flowering time. Understanding how undifferentiated cells make developmental decisions is a central challenge in biology. In the model plant <i>Arabidopsis</i>, stem cells in the shoot apical meristem (SAM) give rise to all of the above-ground parts of the plant. Early in development, the SAM gives rise to vegetative structures (e.g., leaves), but later switches to produce the reproductive structures (flowers). The timing of this transition is not predetermined and can be influenced by multiple pathways that integrate both endogenous signals and environmental cues. We are particularly interested in the role of that the floral repressor <i>FLOWERING LOCUS C</i> (FLC) plays in the regulation of flowering. FLC is the major target of the vernalization pathway (the promotion of flowering by cold). Vernalization results in a mitotically stable epigenetic repression of <i>FLC</i> that is mediated by repressive histone modifications, such as H3K27me3. Because of the epigenetic regulation of FLC, our work on flowering time has led to the discovery of a number of epigenetic regulators that play much broader roles in development.</p>
Desired Skills & Background	A good knowledge of basic molecular biology and/or biochemistry. No prior experience with plants is required.

Indiana University – International Summer Undergraduate Research Program**(IU-ISURP)****Summer Research Experience 2018****Position Description**

Professor's Name	Hengyao Niu
Department	Molecular and Cellular Biochemistry
Faculty Profile	http://www.indiana.edu/~mcbdept/faculty/niu.shtml
Position Description	Mechanisms and regulation of DNA break repair.
Desired Skills & Background	Biochemistry, Molecular Biology or related fields, e.g. Genetics etc. General molecular biology techniques, e.g. molecular cloning and PCR based site-directed mutagenesis, are desired but not required.

**Indiana University - Tsinghua University
Summer Research Experience 2018
Position Description**

Professor's Name	Jim Reilly
Department	Chemistry
Lab website	http://www.chem.indiana.edu/faculty/james-reilly/
Position Description	<p>This project involves the fragmentation of peptide ions in a mass spectrometer using vacuum ultraviolet laser light and the development of new methods to sequence peptides</p> <p>The student will extract proteins from bacterial samples, perform enzymatic digestions, record mass spectra and utilize computer programs to interpret the data.</p>
Desired Skills & Background	Knowledge of basic biochemistry. Some experience in mass spectrometry or computer programming would be helpful.

**Indiana University – International Summer Undergraduate Research Program
(IU-ISURP)****Summer Research Experience 2018
Position Description**

Professor's Name	Sara Skrabalak
Department	Chemistry
Lab website	http://www.indiana.edu/~skrablo/
Position Description	This project will involve the synthesis of metal nanostructures of defined size, shape, and composition by colloidal methods. In addition to synthesis, the student will be involved in characterizing the prepared materials by electron microscopy and evaluating their properties for applications in chemical sensing and electrocatalysis.
Desired Skills & Background	General chemistry. Advanced inorganic or physical chemistry preferred and/or materials or nanochemistry.

Indiana University – International Summer Undergraduate Research Program**(IU-ISURP)****Summer Research Experience 2018****Position Description**

Professor's Name	Nicholas Sokol
Department	Biology
Lab website	http://sokollab.strikingly.com/
Position Description	The student will participate in a genetic screen to identify novel genes required for stem cell based tissue growth using the fruitfly model system. Initial characterization of resulting mutants can also be performed.
Desired Skills & Background	A good knowledge of basic genetics. Some experience in molecular biology will be helpful.

Indiana University – International Summer Undergraduate Research Program**(IU-ISURP)****Summer Research Experience 2018****Position Description**

Professor's Name	Claire Walczak
Department	Medical Sciences / Biochemistry and Molecular Biology
Lab website	http://www.indiana.edu/~cewlab/index.html
Position Description	Understanding the molecular mechanisms governing accurate chromosome segregation
Desired Skills & Background	Courses in cell and molecular biology. Some laboratory experience.

Indiana University – International Summer Undergraduate Research Program**(IU-ISURP)****Summer Research Experience 2018****Position Description**

Professor's Name	Xingchen Ye
Department	Chemistry
Lab website	https://www.chem.indiana.edu/faculty/xingchen-ye/
Position Description	Precision synthesis of colloidal nanocrystals and their integration into mesoscale assemblies for energy conversion
Desired Skills & Background	