THE UNIVERSITY OF ALABAMA

**2016 APPLICATION FOR**

RESEARCH EXPERIENCE FOR UNDERGRADUATE (REU) IN CHEMISTRY

MAY 29 - AUGUST 5, 2016

APPLICATIONS DUE, FEBRUARY 28, 2016

Mr.

1. Full name: Ms. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_

Preferred name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ E-mail Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Address: (present): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(permanent): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Permanent home phone number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

College phone number where you can be reached in March/April/May: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Date of Birth: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. Citizenship: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. College(s) and University(ies) attended, with dates:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Academic Status: Sophomore \_\_\_\_\_\_\_\_\_\_\_\_ Junior \_\_\_\_\_\_\_\_\_\_ Senior \_\_\_\_\_\_\_\_\_\_\_\_

7. Expected graduation date \_\_\_\_\_\_\_\_\_\_\_\_\_ Overall GPA \_\_\_\_\_\_\_ Chem. GPA \_\_\_\_\_\_\_\_

8. List courses taken in college and grades. (Indicate those you are taking at present).

**Chemistry Grade Course Grade**

General Chemistry I \_\_\_\_\_\_ General Chemistry II \_\_\_\_\_\_\_\_

Organic Chemistry I \_\_\_\_\_\_ Organic Chemistry II \_\_\_\_\_\_\_\_

Organic Laboratory I \_\_\_\_\_\_ Organic Laboratory II \_\_\_\_\_\_\_\_

Physical Chemistry I \_\_\_\_\_\_ Physical Chemistry II \_\_\_\_\_\_\_\_

Other Chemistry name: \_\_\_\_\_\_ Other Chemistry name: \_\_\_\_\_\_\_\_

Mathematics I \_\_\_\_\_\_ Mathematics II \_\_\_\_\_\_\_\_

Mathematics III \_\_\_\_\_\_ Mathematics IV \_\_\_\_\_\_\_\_

Physics I \_\_\_\_\_\_ Physics II \_\_\_\_\_\_\_\_

Biology I \_\_\_\_\_\_ Biology II \_\_\_\_\_\_\_\_

Other Science name: \_\_\_\_\_\_ Language: \_\_\_\_\_\_\_\_

9. Earliest date you could begin research: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Do you plan to attend graduate school? \_\_\_\_\_\_\_\_\_\_\_\_\_ Yes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_No

If "yes" in chemistry (\_\_\_\_\_) or biochemistry (\_\_\_\_\_)? Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

Does medical school figure in your plans? \_\_\_\_\_\_\_\_\_\_\_\_\_\_Yes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ No

11. Names, titles and addresses of two persons whom you have asked to write letters of recommendation. Include at least one person who can comment on your laboratory skills.

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Name Address

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Name Address

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

These letters should be sent to: Ms. Evelyn Jackson, Dept. of Chemistry, Box 870336

The University of Alabama, Tuscaloosa, AL 35487-0336

12. **Enclose with this application a short, one-page letter in which you summarize your career goals. Indicate how you think that participation in this program will assist you in attaining these goals.**

13. Indicate your top four (or more) choices of research projects or areas in order of preference:

\_\_\_\_\_ First Choice \_\_\_\_\_Second Choice \_\_\_\_\_Third Choice

\_\_\_\_\_ Fourth Choice \_\_\_\_\_Other Choice

|  |  |
| --- | --- |
| 1 | Asymmetric Reaction Methodology |
| 2 | Beyond Raney Nickel: Next Generation Hydrogenation Catalysts |
| 3 | Binding of Potential Drugs to Cytochrome P450 |
| 4 | Biochemistry of Chromium |
| 5 | Biochemistry of RNA methyltransferases regulating meiosis |
| 6 | Carbon Dioxide Capture, Reactivity and Sequestration |
| 7 | Catalysis in microfluidic devices |
| 8 | Chemical Bonds for Storing Energy via Catalysis |
| 9 | Chemical Ordering in Binary Alloy Nanoparticles |
| 10 | Chemical Recognition Using Hyperbranched Polymers |
| 11 | Cocrystals - Designing Molecular Pairs to Assemble together in a Cocrystal |
| 12 | Computational Approaches to Advanced Energy Systems - Actinide and Lanthanide Chemistry |
| 13 | Computational Biochemistry: Acid/Base Properties and Thermochemistry of Peptides |
| 14 | Computational Studies of Homogeneous and Heterogeneous Catalytic Reactions |
| 15 | Conducting Polymers for Surface Coatings |
| 16 | Designing Metal Based Drugs that Target Cancerous and Bacterial Cells |
| 17 | Development of Catalytic Diversity in an Enzyme Scaffold |
| 18 | Development of Chemical Sensors for Airborne Pollutants |
| 19 | Development of Novel Catalytic Reaction Methodology |
| 20 | Diffuse Scattering Studies on Single Crystals of Doped Vanadium Oxides |
| 21 | Electrochemical and Optical Sensors |
| 22 | Environmentally Friendly Methods for Converting Carbon Dioxide to Useful Products |
| 23 | Ethics in Chemistry |
| 24 | Gas-phase Structures of Peptide Ions |
| 25 | Hydrogen Storage Opportunities with Novel Valence Structures |
| 26 | Improving the Synthesis of Peptide Nucleic Acids |
| 27 | Inorganic Coordination Compounds for Dye-Sensitized Solar Cells |
| 28 | Mass Spectrometry of Explosives |
| 29 | Mass Spectrometry Studies of Peptides |
| 30 | Measurements of Potential Single-Molecule Rectifiers |
| 31 | Mechanisms of Carbohydrate Chemistry in Glycosyltransferase Enzymes |
| 32 | Medium Ring Carbocycles and Cytotoxic Xenia Diterpenoids |
| 33 | Metal and Metal Oxide Nanoparticle Catalysis |
| 34 | Metallotherapeutics |
| 35 | Metals and Free Radicals in Proteins |
| 36 | MnBi Nanoparticles for High Energy Permanent Magnets |
| 37 | Modified DNAs and RNAs |
| 38 | Nanoelectrochemistry for Ultrasensitive Detection |
| 39 | Nanomaterials for Batteries |
| 40 | Nanoparticle Synthesis for Solar Cell Applications |
| 41 | New Catalysts for Environmentally Benign Synthesis |
| 42 | New Dyes for Non-Linear Optical Applications – Advanced Materials |
| 43 | New Reagents for Organic Synthesis |
| 44 | Novel Antiinflammatory and Anticancer Agents |
| 45 | One-Pot Heterogeneous Catalysts for Fixed Bed Reactors |
| 46 | Organic Solar Cells |
| 47 | Organic Synthesis of New Hydrogen Bonding Molecules |
| 48 | Organometallic Catalysts in Organic Synthesis |
| 49 | Pattern-Based Molecular Recognition: Enforcing Selectivity in Sloppy Chemical Receptors |
| 50 | Polymer Micelles for a Magnetically Triggered, Targeted Drug Delivery System |
| 51 | Polymer Templating of Inorganic Nano-structures |
| 52 | Polymer Waveguides for Explosives Detection |
| 53 | Polymerization of Transition Metal Complexes for Non-Platinum Group Metal Fuel Cell Catalysts |
| 54 | Searching for Better Perovskite Solid Solar Cells |
| 55 | Separating Carbon Nanotubes by Derivatized End-Groups Followed by Ion-Exchange Chromatography |
| 56 | Stable Phosphorus-derived Biradicals and Their Chemistry |
| 57 | Structure and mechanism of antibiotic resistance rRNA methyltransferases |
| 58 | Synthesis and Properties of Smaller Analogues for Macromolecular Polyelectrolytes |
| 59 | Synthesis of Agents for the Treatment of Diabetes |
| 60 | Synthesis of Inorganic Materials Using Biological Templates |
| 61 | Synthesis of Nanostructured Thermoelectrics: Materials that Convert Heat into Electrical Power |
| 62 | Synthesis of Novel, Geologically-Inspired Oxides for Magnetic Applications |
| 63 | Synthesis of Unusual Valence Structures |
| 64 | Synthesizing New Organic Molecules for Catalysis that Can Be Turned "On/Off" |
| 65 | Synthesizing Organic Molecules that Reversibly Change Shape and Color upon Redox Change |
| 66 | The Design and Synthesis of Conjugated Polymers for Solar-cell Applications |
| 67 | Thermodynamics of Combustion |
| 68 | Thin Film Synthesis of Novel Oxide Materials Using Pulsed Laser Deposition |
| 69 | Total Synthesis of Natural Products |

**EVALUATION REPORT**

**SUMMER RESEARCH EXPERIENCES FOR UNDERGRADUATES (REU) PROGRAM IN CHEMISTRY**

ATTN.: Ms. Evelyn Jackson

Summer Undergraduate Research Program

Department of Chemistry, Box 870336

The University of Alabama

Tuscaloosa, AL 35487

Student Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Instructions to Reference: Please comment on the applicant's background and achievement in chemistry, his or her laboratory skills, and his or her potential for independent study. Please mail this form to Dr. John Vincent at the above address. Thank you for your help.

***Evaluation of Student Excellent Poor***

*Work Habits 1 2 3 4 5 No basis to judge*

*Ability to Follow Directions 1 2 3 4 5 No basis to judge*

*Scientific Curiosity 1 2 3 4 5 No basis to judge*

*Maturity 1 2 3 4 5 No basis to judge*

*Chemical Knowledge for College Level 1 2 3 4 5 No basis to judge*

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Position or Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_