

The University of Alabama  
**2019 Application**  
 Research Experiences for Undergraduates (REU) in Chemistry  
 May 28 – August 2, 2019  
 (Applications due February 28, 2019)

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

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

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

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

3. Phone number: (permanent): \_\_\_\_\_ (cell): \_\_\_\_\_

4. Date of Birth: \_\_\_\_\_ 5. Citizenship: \_\_\_\_\_

6. College(s) and University(ies) attended, with dates:  
 \_\_\_\_\_  
 \_\_\_\_\_

7. Academic Status: Freshman \_\_\_\_\_ Sophomore \_\_\_\_\_ Junior \_\_\_\_\_ Senior \_\_\_\_\_

8. Expected graduation date: \_\_\_\_\_ Overall GPA: \_\_\_\_\_ Chem. GPA: \_\_\_\_\_

9. College courses and grades (indicate those presently taking):

<b>Course</b>	<b>Grade</b>	<b>Course</b>	<b>Grade</b>
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:	_____	Other Chemistry:	_____
Mathematics I	_____	Mathematics II	_____
Mathematics III	_____	Mathematics IV	_____
Physics I	_____	Physics II	_____
Biology I	_____	Biology II	_____

Other Science(s): \_\_\_\_\_ Language: \_\_\_\_\_

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

11. Do you plan to attend graduate school? Yes \_\_\_\_\_ No \_\_\_\_\_ Undecided \_\_\_\_\_

If **yes**, in: Chemistry \_\_\_\_\_ Biochemistry \_\_\_\_\_ Other: \_\_\_\_\_

Does medical school figure into your plans? Yes \_\_\_\_\_ No \_\_\_\_\_

12. Name, title, and address of two individuals asked to write letters of recommendation (include at least one person who can comment on your laboratory skills):

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Name, Title	Address
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Name, Title	Address
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Send letters to: Ms. Monika Agin  
Dept. of Chemistry and Biochemistry, Box 870336  
The University of Alabama  
Tuscaloosa, AL 35487-0336

13. Enclose with this application a short, one-page summary of your career goals. Indicate how you think participation in this program will assist you in attaining these goals.
14. Indicate your top four (or more) choices of research projects or areas below in order of preference:

\_\_\_\_\_ First Choice                      \_\_\_\_\_ Second Choice                      \_\_\_\_\_ Third Choice  
\_\_\_\_\_ Fourth Choice                      \_\_\_\_\_ Other Choice

1. Amine-Quinone Polymers and the Protection of Aluminum Aircraft Alloys Against Corrosion
2. Antibiotic Resistance of Gram-Positive Pathogens
3. Asymmetric Reaction Methodology
4. Beyond Raney Nickel: Next Generation Hydrogenation Catalysts
5. Binding of Potential Drugs to Cytochrome P450
6. Biochemistry of Chromium
7. Biochemistry of RNA Methyltransferases Regulating Meiosis
8. Building a Targeted, Magnetically Triggered Drug Delivery System for Cancer Chemotherapy
9. Carbon Dioxide Capture, Reactivity, and Sequestration
10. Catalysts for Activation of C-H Bonds
11. Chemical Bonds for Storing Energy via Catalysis
12. Chemical Ordering in Binary Alloy Nanoparticles
13. Chemical Sensing of Biologically Relevant Carboxylates using Fingerprinting Techniques
14. Cocrystals: Designing Molecular Pairs to Assemble in a Cocrystal and X-ray Crystallography of Cocrystals
15. Computational Approaches to Advanced Energy Systems - Actinide and Lanthanide Chemistry
16. Computational Biochemistry: Acid/Base Properties and Thermochemistry of Peptides
17. Computational Modeling of Complex Scattering Data
18. Computational Studies of Homogeneous and Heterogeneous Catalytic Reactions
19. Concentration, Solubilization, and Detection of Polycyclic Aromatic Hydrocarbons (PAHs)
20. Designer Alloys Built by the Self-Assembly of Metal Alloy Nanoparticles
21. Designing Metal Based Drugs that Target Cancerous and Bacterial Cells
22. Development of Catalytic Diversity in an Enzyme Scaffold
23. Development of Chemical Sensors for Airborne Pollutants
24. Development of Novel Catalytic Reaction Methodology
25. DNA Origami without the DNA
26. Dye-Sensitized Solar Cells: Designing Molecules to Move Electrons Around
27. Electrochemical and Optical Sensors
28. Electron Transfer in DNA Processing Enzymes
29. Environmentally Friendly Methods for Converting Carbon Dioxide to Useful Products
30. Ethics in Chemistry

31. Fluorescent Nucleosides for DNA and RNA
32. Investigation of Protein Dynamics using Mass Spectrometry
33. Mass Spectrometry Ionization of Biomolecules
34. Mass Spectrometry Studies of Peptides
35. Measurements of Potential Single-Molecule Rectifiers
36. Medium Ring Carbocycles and Cytotoxic Xenia Diterpenoids
37. Metal and Metal Oxide Nanoparticle Catalysis
38. Metallotherapeutics
39. Metals and Free Radicals in Proteins
40. Nanoelectrochemistry for Ultrasensitive Detection
41. Nanomaterials for Batteries
42. Nanoparticle Synthesis for Solar Cell Applications
43. New Catalysts for Environmentally Benign Synthesis
44. New Reagents for Organic Synthesis
45. Novel Anti-inflammatory and Anticancer Agents
46. One-Pot Heterogeneous Catalysts for Green Chemistry
47. Organic Solar Cells
48. Organometallic Catalysts in Organic Synthesis
49. Polymer-Based Phosphate and Nitrate Sensors for Environmental Applications
50. Porous Carbon-Based Catalysts for Fuel Cells
51. Searching for Better Perovskite Solid Solar Cells
52. Separating Carbon Nanotubes by Derivatized End-Groups Followed by Ion-Exchange Chromatography
53. Structure and Mechanism of Antibiotic Resistant rRNA Methyltransferases
54. Synthesis of Agents for the Treatment of Diabetes
55. Synthesis of Inorganic Materials Using Biological Templates
56. Synthesis of Nanostructured Thermoelectrics: Materials that Convert Heat into Electrical Power
57. Synthesis of Novel Separation Geometries
58. Synthesis of Novel, Geologically-Inspired Oxides for Magnetic Applications
59. Synthesizing New Organic Molecules Capable of Reversible Photo-Electro-Stimulated Flexing
60. Synthesizing Organic Molecules that Reversibly Change Shape and Color upon Redox Change
61. The Design and Synthesis of Conjugated Polymers for Solar-cell Applications
62. The Synthesis of Charged, Ultra-high-performance Polymers
63. The Synthesis of Polyamines: Polymers for CO<sub>2</sub> Capture and Drug Delivery
64. Thin Film Synthesis of Novel Oxide Materials Using Pulsed Laser Deposition
65. Total Synthesis of Natural Products

**Evaluation Report**  
**Summer Research Experiences for Undergraduates (REU) Program**

Attn: Ms. Monika Agin  
Summer REU Program  
Dept. of Chemistry and Biochemistry, Box 870336  
The University of Alabama  
Tuscaloosa, AL 35487

Student's name: \_\_\_\_\_

Instructions to Reference: Please comment on the applicant's background and achievement in chemistry, laboratory skills, and potential for independent study. You may mail this form and any attachments to the above address, or email to [jvincent@ua.edu](mailto:jvincent@ua.edu). Thank you for your help.

<b>Evaluation of Student</b>	<b>Excellent</b>					<b>Poor</b>
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: \_\_\_\_\_