

## **BIOL-UA 926.001 Build-A-Genome**

### **Instructor:**

Stephanie Lauer  
Joseph Osmundson

### **Course Description:**

This is an intensive course designed to provide hands-on experience in a laboratory setting. Students will perform independent laboratory research by making important contributions to an ongoing project and may even have the opportunity to publish their work. Students should expect to complete their individual assignments by the end of the semester, which will require commitment to the following: attending group laboratory sessions and group meetings, diligent note taking in an online laboratory notebook, reading relevant scientific literature, and performing independent laboratory work. All laboratory sessions must be logged in the student's notebook. Laboratory safety is extremely important, and all EHS safety requirements must be met before students begin class.

### **Pre-requisite:**

N/A

### **Textbook and Required Materials:**

Weekly readings as assigned

### **Grading:**

Presentation/discussions	40%
Lab notebook	20%
Written assignments	20%
Attendance	10%
Practical bench knowledge	10%

### **Topics:**

Yeast transformation with pRS plasmids  
Yeast transformation with genomic integration  
Yeast transformation/PCR confirmation for independent products  
Gel electrophoresis  
Yeast mating  
tetrad dissection  
PCR tag analysis of endoduplicated strains  
Transformation with plasmids containing opposite mating type  
Using SnapGene to design CRISPR gRNAs  
CRISPR experiment to delete ADE2 using student-designed gRNAs  
genotyping of tetrads for independent project