

Frequently Asked Questions about MolGen 4581S

“BioEYES: Hands-on STEM learning with zebrafish in Columbus Public Elementary Schools

Q: How many credits is this class? How often does the class meet?

A: 1 credit. Besides two class gatherings, one at the beginning and one at the end of the course, the class does not meet regularly on campus. Instead, you choose 4 elementary school visits (2 classrooms per visit) throughout the semester that work with your schedule. Most school visits are on Mondays, Tuesdays, and Fridays (and occasional Wednesdays and Thursdays) and last ~2.5-3 hours (2 classroom periods/visit) (~3.5-4 hours with transportation). Visits occur at variable times between mid-morning to mid-afternoon.

Q: What are the prerequisites?

A: Prerequisites are BIOL 1113 and an upper division course in a science or science education department, or permission of instructor. All students who are interested in biology and are eager to learn how to communicate biological concepts to elementary school students are welcome.

Q: What curriculum do we teach to elementary school students?

A: The hands-on science experience provided for upper elementary students in this course is based upon “Project BioEYES”, a successful international teaching curriculum that was initially developed in 2002, that has reached >150,000 students and >1,000 teachers across the globe. The Ohio State University is a recognized BioEYES partner site (<https://www.bioeyes.org/partner-sites>). The Columbus BioEYES program operates as a partnership between Columbus public elementary schools and BioEYES-trained OSU scientists. Click here (<https://www.youtube.com/watch?v=Wpu0UgoFdqs>) for a quick overview of BioEYES.

Q: I don't know anything about zebrafish! How will I learn the basics?

A: During the first week, you will do self-paced review of (1) the BioEYES website (<https://www.bioeyes.org>), including video tutorials of BioEYES activities (<https://www.bioeyes.org/refreshers>), (2) the BioEYES teacher manual, and (3) a short video by the instructor describing the activities performed each day over the course of the week-long classroom experiment. During the second week, you will get your hands wet (literally!) during a 3-hour session with the instructor and course coordinator to tour the zebrafish facility, perform hands-on activities, discuss effective elementary classroom teaching techniques, review the BioEYES student journal activities, and ask questions.

Q: What will I do in the classroom and the course? What will I learn?

A: OSU students enrolled in this course will help teach the BioEYES curriculum in the elementary school classroom, assisting students with hands-on activities and actively engaging with them as they make observations and generate hypotheses. Students enrolled in this course will learn how to (1) effectively manage a classroom during active learning, (2) design an effective and exciting hands-on curriculum, and (3) interact positively with upper elementary students and their teachers. As a final assignment, students will design and demonstrate a genetics or genomics hands-on activity for the class.

Q: What is required besides classroom visits?

A: Most of the coursework is participating in 4 elementary school visits (2 classrooms per visit) for a total of 8 classroom sessions. After each visit, you will fill out a short self-reflection. You will also participate in 2 sessions to assist preparation of materials needed for the classroom activities. There is one course assignment (a final project). The course assignment involves designing a hands-on activity for elementary school students that expands upon what they have learned in BioEYES or covers a new topic in genetics and/or genomics. The student will turn in a 1-page description, video, or powerpoint/keynote presentation and demonstrate their activity at our final wrap-up session.

Q: I don't have a car? How do students get to the elementary school?

Transportation is provided by the instructor and course coordinator, or you are welcome to drive your own car. All the schools we visit are only a 10 to 15-minute drive away. We meet at and return to Rightmire Hall on west campus (CABS buses run frequently between main and west campus). Thus, you will likely need a ~4-hour block of time on the days we visit the classroom.