Instructors: Barbara Christie-Pope & Craig Tepper

Course learning objectives:
- To develop an expertise and working knowledge of the literature related to the research topics.
- To develop and conduct a research project focusing on the biology of fire corals (*Millepora*) and their algal protist symbionts (*Symbiodinium*).
- To become familiar with research techniques useful for studying the molecular biology of marine organisms.
- To become familiar with scientific writing, scientific publication, and the peer-review process by critiquing published articles and writing a manuscript outlining a research proposal and the results of your research.
- To meaningfully discuss the chosen research topic with other biologists.

This course supports the Educational Priorities and Outcomes of Cornell College with emphases on knowledge, inquiry, reasoning, communication, and vocation.

Expectations:
The research projects will be a collaborative effort between student researchers and instructors. We expect all of us to gain insight and knowledge as a direct result of our research interactions. Students will take primary responsibility for conducting research and do so with professional attitudes and time commitments. With our guidance, we expect students to produce a manuscript modeled after the peer reviewed literature you are reading in order to write your research paper. The Introduction to your paper will consist of the background for a research proposal that your group designs. This proposal must address either Millepore biology or *Symbiodinium*. Students should understand that producing a publishable manuscript generally requires many drafts, reviews, and revisions.

Evaluation:
Your final course grade will be determined according to the following criteria:

- Effort, attitude, and time invested in the research project including lab safety, attention to detail, ability to troubleshoot research problems, obtaining reproducible results, and participation in paper revisions.
- Organization of lab research results, computer files, and any other documentation that remains in the lab as your research legacy.
- Familiarity with relevant research literature.
- Evidence of original thought regarding the project.
- Quality of ALL your drafts and the final written research paper.

Daily Schedule:
The daily schedule will be determined by weather conditions and availability of the boat while we are at IZE. On a typical day, we will spend half of our day working in the lab and the other
half working at one of a number of reef sites. Additionally, we (Barbara and Craig) meet with the research groups every evening at 7:00 PM to discuss paper drafts. This schedule will remain the same all week (including weekends).

**Required Reading** (all readings can be found on Moodle)


**Project Specific Reading**

**Millepore Phylogeny**


**Symbiodinium**

Millepore Nematocysts


In order to write the research paper required for this course, you will need numerous other references on the topic your group decides to pursue. Craig will compile a list of relevant papers on a flash drive and you may download all of these papers onto your computer after we arrive in Belize.