# URP 150/250: Undergraduate Research Program

## URP 150/250
## Undergraduate Research Program
## (4 credits each)
## Class Size: 1-25

*Faculty: James Spencer, Professor, Syracuse University*
*Administrative Contact: David Tate, Associate Director, Project Advance*

## Course Catalog Description

Research or other academic work in conjunction with faculty-generated research or professional work project as administered through the Undergraduate Research Program.

## Course Overview

The primary goals of the Undergraduate Research Program (URP) is to provide critical opportunities for students to understand what constitutes modern scientific research and to gain first-hand mentored experience with research in scientific disciplines. These goals are achieved through both a close examination of the scientific discovery and communication process as well as through direct “hands-on” involvement in carefully guided basic and applied research projects.

The program involves a multiyear approach, with each year focused upon an exploration of different aspects of scientific inquiry and discovery. University credit (URP 150) is provided for students enrolled in their junior year (4 credits per year). University credit (URP 250) is provided for

students enrolled in their senior year. Often, however, students will begin the research sequence during their sophomore years.

Each year of the program is focused upon different broad themes in exploring scientific research. These themes progress from an in-depth examination of the scientific method itself through the completion of a significant research experience for the student. These themes broadly explore the "basic tools of scientific research and discovery," the "process of scientific research" and the "results of scientific research."

## Pre- /Co-requisites

N/A

## Course Objectives

- To Identify and foster talented, interested, and motivated students focused on science research leading to science-based careers;
- To provide students a forum to understand and develop critical thinking skills through active learning
- To introduce and define research including the components that are required to develop high-quality research questions, hypotheses, experimental design, and conclusions.
- To provide skills to students to gain scientific literacy including effective literature searches, identifying relevant research topics, reference management software, how to effectively read scientific literature, and interpreting charts and graphs.
- To promote effective scientific communication through the writing of reports summarizing research topics, presentation skills
- To provide students with a forum to develop and execute

independent research projects, including
    - The manner in which to ask tenable research questions
    - Formulating a testable hypotheses
    - Engaging in group and independent experimental design, including the use of controls
    - The manner in which to take laboratory notes

- To provide College credit for science research work.

## Laboratory

N/A

## Required Materials

N/A

## Instructor Recommendations

N/A