

### **NATS 150 Research Topics: Integrated Science (2)**

This is an introductory research-based seminar series that will introduce scientific concepts and research methodologies from multiple disciplines within an interdisciplinary theme. The theme is based on a current problem that is best solved using an interdisciplinary scientific approach. Examples include mass extinction, the brain, energy, and management of water resources. Throughout the course, students will actively discuss, analyze, and create a series of research questions based on the identified scientific problem. The students then conduct, analyze, and present experiments that utilize skills and concepts from multiple scientific disciplines. Concepts from the following natural science disciplines will be introduced: mathematics, computer science, biology, chemistry, physics, and nutrition.

### **NATS 150A Topic: Wandering the Watab (2)**

This is a theme-based natural science course that will address the issues of water flow, waste water treatment and water pollution, and what happens when you flush the toilet. This course provides a new and exciting approach to teaching science. Not only will you learn and apply valuable concepts from six different science disciplines (biology, chemistry, geology, computer science, physics, and math) to a scientific question, but you will be able to conduct real and exciting research!

We will be discussing the history of the Watab water system in campus, collecting and conducting research on the Watab water system which will include trips to river system (get ready to canoe). Questions we will address include: How does the Watab water flow? What turns Gemini green? What is in the water? What happens when you flush (and the impact of human disruption on the water system)? How do we approach these water systems in the future? You do NOT have to be a science major and you do not have to have previous science experience to take this course. We certainly encourage students interested in science (first years or upper classmen) and science majors to enroll. For questions, please contact Barb May (bmay@csbsju.edu), Adam Whitten (awhitten@csbsju.edu), Larry Davis

(ldavis@csbsju.edu), or Karen Bengtson (kbengtson@csbsju.edu). This is a two credit course entitled Research Topics in Integrative Science (NATS150). This course meets twice per cycle on days 2 and 4 from 2:40-4:40 on the CSB campus in HAB1115.

### **NATS 151 Integrative Science I (4)**

This introductory research-based course will introduce scientific concepts and research methodologies from multiple disciplines in the context of interdisciplinary themes. Each theme is based on a current problem that is best solved using an interdisciplinary scientific approach. Examples include how a cheetah catches a gazelle, alcohol as a fuel, and why kangaroos only exist in Australia. Throughout the course, students will actively discuss, analyze, and create a series of research questions based on the identified scientific problem. The students then conduct, analyze, and present experiments that utilize skills and concepts from multiple scientific disciplines. Concepts from the following natural science disciplines will be introduced: mathematics, biology, geology, chemistry, physics. This course, along with NATS152 are meant to meet the science requirements for elementary education majors. Prerequisites: Three years of college preparatory mathematics and satisfactory performance on the university administered Quantitative Skills Inventory Test. Students who have an ACT – Math score of 21 or greater or SAT – Math score of 530 or greater will be granted satisfactory performance status without taking the examination. Otherwise, the examination will be administered by appointment with the Mathematics Skills Center.

### **NATS 152 Integrative Science II (4)**

This introductory research-based course will introduce scientific concepts and research methodologies from multiple disciplines in the context of interdisciplinary themes. Each theme is based on a current problem that is best solved using an interdisciplinary scientific approach. Examples include life on other planets, food, and cancer. Throughout the course, students will actively discuss, analyze, and create a series of research questions based on the identified scientific problem. The students then conduct, analyze and present experiments that utilize skills and concepts from multiple scientific disciplines. Concepts from the following natural science disciplines will be introduced: mathematics, biology, chemistry, geology and physics. This course, along with NATS 151 are meant to meet the science requirements for elementary education majors. Prerequisites: NATS 151 or permission of the instructor, three years of college preparatory mathematics and satisfactory performance on the university administered Quantitative Skills Inventory Test. Note: Students who have an ACT-Math score of 21 or greater or SAT-Math score of 530 or greater will be granted satisfactory performance status without taking the examination. Otherwise, the examination will be administered by appointment with the Mathematics Skills Center.

### **NATS 271 Independent Study (1-4)**

Supervised reading or research at the lower-division level. Permission of department chair required. Consult department for applicability towards major requirements. Not available to first-year students

**NATS 371 Independent Study (1-4)**

Supervised reading or research at the upper-division level. Permission of department chair and completion and/or concurrent registration of 12 credits within the department required. Consult department for applicability towards major requirements. Not available to first-year students.

**NATS 378 Senior Capstone in Natural Science (2)**

This course provides the capstone experience for NATS majors. Students will independently investigate a scientific question chosen in consultation with the instructor. They will do a thorough literature review of the question and propose a possible hypothesis and/or experiment that would further knowledge about the question, using current literature to defend their hypothesis/experiment. They will address at least two different scientific fields as part of their research. Offered for A-F grading only. Prerequisites: Senior standing in NATS major

**NATS 379 Senior Capstone in Natural Science Education (1)**

The course provides the capstone experience for NATS/Secondary Education majors by providing an opportunity to integrate new scientific knowledge and the scientific process with the student-teaching experience. Pre-requisites: SR standing in the NATS major; concurrent enrollment in EDUC 362

**NATS 397 Internship (1-16)**

Completed Application for Internship Form REQUIRED See Internship Office Web Page.