**Freshman Peekskill Science Research Course Syllabus**

**Syllabus**

**2019-2020**

**Course Objective:** The Freshman-Peekskill Science Research (F-PSR) course will serve to introduce ninth grade students to concepts of research in various fields of science. The goal of this half-year course to help students prepare for the Peekskill Science Research three-year course sequence via SUNY Albany that they can take from their sophomore to senior year. The FSR will provide opportunities for students to explore fields of science and the types of research and career possibilities that each of them provides. The five scientific fields covered by the course are Environmental Sciences, Public Health, Social Science Research, and Engineering.

**Course Sequence (15 weeks):**

1. **Environmental, Plant, and Animal Sciences (3 weeks)**
2. **Public Health and Medicine (3 weeks)**
3. **Social Science Research (3 weeks)**
4. **Engineering and Computer Sciences (3 weeks)**
5. **Chemistry and Biochemistry (1 week)**
6. **Physics, Astronomy, Earth and Planetary Sciences (2 weeks)**

**Course Description:**

 Each of the topics listed above will be reviewed to introduce students to the field and related current research. Lessons will include a brief overview of a given field with activities that engage and allow for reading, critical thinking, and discussion of current issues. A brief lecture will include interactive video clips and Q&A sessions. Students will read two articles that inform them of current issues in the field, and highlight text, take bulleted notes, ask questions, look up vocabulary, summarize, and explain the key points to the teacher. Students will create a portfolio that is a culmination of all the course topics covered with their own study of the current research in each of the six topics reviewed in class.

**Course Schedule:**

1. **Environmental, Plant, and Animal Sciences (3 weeks)**
* Environmental Science Overview/Key Themes in Environmental Science
* Land and Aquatic Ecology (Energy Flow, Ecosystems)
* Wildlife, Fisheries and Endangered Species
* Human Population and the Environment
* Environmental Health, Pollution, and Toxicology
* Natural Disasters and Catastrophes
* Agriculture, Food production, and Effects
* Forests, Parks, and Landscapes
* Urban Environments
* Fossil Fuels/Alternative Energy
* The Atmosphere, Climate, and Global Warming
* Air/Water Pollution and Waste Management

**2. Public Health and Medicine (3 weeks)**

* Overview of Public Health
* Community Health Issues Research (Obesity, Teen Pregnancy, Breastfeeding, Healthy Nutrition, and Exercise)
* Epidemiology Basics (Disease Surveillance, Lyme Disease, WNV,& Immunization)
* Public Health Prevention Education and Evaluation

**3. Social Science Research (3 weeks)**

* Race, Nationality, and Ethnicity
* Mass Media
* Sociology of Food
* Youth Cultures
* Sociology of Gender and Sexuality
* Social Movements
* Cults, Clans, and Communities
* Class Conflict and Inequalities
* Spirituality, Superstition, and Legends
* Consumerism
* The Family

 **4. Engineering and Computer Sciences (3 weeks)**

* Mechanical Engineering
* Computer Engineering
* Civil Engineering
* Electrical Engineering

**5. Chemistry and Biochemistry (1 week)**

* Topics in Chemistry research
* Biological molecules (Carbohydrates, Proteins, Fats, and DNA) related research

**6. Physics, Astronomy, Earth and Planetary Sciences (2 weeks)**

* Topics in Physics research
* Topics in Astronomy research
* Topics in Earth and Planetary Science Research

**7. Student Portfolio**

* Students collect two articles from each unit with their biweekly notes, summary, questions, and vocab.
* Students propose their research on one topic from the many they learned in the semester.

**Students are evaluated in the following manner:**

Each individual meets once every two weeks one on one with the teacher. Each meeting is graded according to the student grading sheet.

**The semester average is computed as follows:**

Biweekly Grading Sheets = 80%

Classwork/Presentations = 10%

Participation = 10%