

04 Presentation of Research Articles

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **Oct-June**
Status: **Published**

General Overview, Course Description or Course Philosophy

Introduction to Science Research Methods CP is the first course in a three year sequence of courses. Students learn research methodology in the natural sciences by accessing scientific databases, using online bibliographic search techniques, learning how to analyze and create scientific presentations to be shared in class and during the end of year Symposium. There will be an emphasis for students to obtain a mentor by the end of school year to help further their research studies. Students will have the opportunity to apply basic research methods in the area of Molecular Biology and Bioinformatics.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Communication of scientific ideas must be conducted through written text, open discussion, and formal presentations. The collaborative nature of scientific investigations requires scientist to work with people within their area of study and outside of their area of study. Scientist must be able to convey their message in an accurate and concise manner. Scientist present their ideas in a variety of forums (group collaborative meeting, conferences, etc).

CONTENT AREA STANDARDS

LA.RI.9-10.2	Determine a central idea of a text and analyze how it is developed and refined by specific details; provide an objective summary of the text.
LA.RI.9-10.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
LA.SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
LA.SL.9-10.4	Present information, findings, and supporting evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to task, purpose, and audience.
VHEL.9-12.9.4.12.H.5	Select and employ appropriate reading and communication strategies to learn and use technical concepts and vocabulary in practice.
VHEL.9-12.9.4.12.H.16	Employ critical thinking skills (e.g., analyze, synthesize, and evaluate) independently and in teams to solve problems and make decisions.
VHEL.9-12.9.4.12.H.42	Conduct and participate in meetings to accomplish tasks.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

TECH.9.4.12.TL.1	Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).
TECH.9.4.12.TL.4	Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).

STUDENT LEARNING TARGETS

Declarative Knowledge

Students will know:

- Scientist engage in compelling arguments based on evidence.
- Scientific communication of ideas must be conducted in a clear and concise manner using written text and verbal presentation methods.
- Scholarly work benefits from the collaboration with others and the scholarly critique by others.
- Scholars respect other opinions and learn by viewing problems from other perspectives.

Procedural Knowledge

Students will be able to:

- Communicate research study ideas and analysis of articles in a laboratory notebook and research portfolio binder (SUNY UHS requirement)
- Formulate well-reasoned argument, taking the complexities of the problem or issue into consideration.
- Provide insightful and cogent commentary that links evidence with claims.
- Attribute knowledge and ideas accurately and ethically, using an appropriate citation style.
- Present research articles for discussion to class peers and instructor for critique (SUNY UHS requirement)
- Present research article analysis at annual symposium (SUNY UHS requirement)
- Meet biweekly for teacher and self assessment of research progress and presentation quality based on rubric provided by SUNY UHS (SUNY UHS requirement).
- Attend and participate in the Science Symposium (SUNY UHS requirement).
- Provide Symposium invitation list and promote symposium within the local community as a way to increase awareness of scientific research endeavors in Kinnelon High School. (SUNY UHS recommendation)

EVIDENCE OF LEARNING

Formative Assessments

Research portfolio binder

Lab notebook

Self Assessment (SUNY UHS)

Biweekly teacher assessment (SUNY UHS)

Presentation of research article (discussion in class)

Summative Assessments

- Benchmarks – departmental benchmark given at the end of MP1, MP2, or MP3 & MP4 b(Semester Based Course)
 - Research portfolio binder
 - Lab notebook
 - Self Assessment (SUNY UHS)
 - Biweekly teacher assessment (SUNY UHS)
 - Presentation of research article (PowerPoint, Prezi, etc)
- Alternative Assessments
 - Lab inquiries and investigations
 - Lab Practicals
 - Exploratory activities based on phenomenon
 - Gallery walks of student work

- Creative Extension Projects
- Build a model of a proposed solution
- Let students design their own flashcards to test each other
- Keynote presentations made by students on a topic
- Portfolio

RESOURCES (Instructional, Supplemental, Intervention Materials)

<http://www.albany.edu/uhs/src.php>

<http://www.albany.edu/scienceresearch/>

<http://static.nsta.org/files/PB297Xweb.pdf>

www.Sciencebuddies.com

<https://www.aaas.org/>

INTERDISCIPLINARY CONNECTIONS

Speaking and presentation skills

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.

