

## **Carmel Science Research Syllabus**

### **Contact Information:**

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### **Course Descriptions:**

#### **A CAS 109 Intermediate Science Research (2 credits, July – August [summer]) - Juniors**

Students learn research methodology in the natural and social sciences by accessing scientific databases, by using on-line bibliographic search techniques, consulting doctoral-level research scholars, developing hypotheses and performing experiments to test them, and by writing research papers and making presentations at scientific symposia. It is expected that the students will have done many of these activities in the prerequisite high school course, and in this course emphasis is placed upon the formulation of hypotheses and initiation of experiments in consultation with mentors. *Prerequisite(s): completion of one year of an approved course in science research at the high-school level; permission of instructor. Offered summer session only.*

#### **A CAS 110 Intermediate Methods of Research (4 credits, September – June [1 CHS]) - Juniors**

Students learn research methodology in the natural and social sciences by accessing scientific databases by using on-line bibliographic search techniques, consulting doctoral-level research scholars, developing hypotheses and performing experiments to test them, and writing research papers and making presentations at scientific symposia. It is expected that the students will have done many of these activities in the prerequisite high school course, and in this course emphasis is placed upon performing experiments in consultation with mentors. Students are expected to spend at least three hours per week outside of class. *Prerequisite(s): completion of one year of an approved course in science research at the high-school level; permission of instructor; available for year-long course of study only.*

#### **A CAS 209 Advanced Science Research (2 credits, July – August [summer]) - Seniors**

Continuation of work undertaken in A CAS 109 or equivalent with emphasis placed upon the completion of experiments in consultation with mentors. Students will consult with their teachers as necessary, but will not meet in a formal classroom period. *Prerequisite(s): satisfactory completion of A CAS 109 or completion of two years of an approved science research course at the high school level; permission of instructor; offered summer session only.*

#### **A CAS 210 Advanced Methods of Research (4 credits, September – June [1 CHS]) - Seniors**

Continuation of work undertaken in A CAS 110 or equivalent with emphasis placed upon the communication of results. Students are expected to spend at least three hours per week outside of class. *Prerequisite(s): satisfactory completion of A CAS 110 or completion of two years of an approved science research course at the high school level; permission of instructor; students must be enrolled throughout an entire academic year to obtain credit.*

**The Requirements of this course as stipulated by the Science Research Program at the University at Albany are as follows:**

- Attend all regularly scheduled classes.
- Participate at a level appropriate to present year of course, in the school's annual symposium.
- Commit to 240 or more hours per school year (September to June) for their research work (this includes class time, assessment meetings, and all out of class time spent on the research).
- Summer research carries a commitment of a minimum 90 hours plus assessment time. These hours include full attendance at your local school symposium for each year that you are in the research course.
- Maintain a laboratory notebook/journal of all research related work starting at beginning of entry into research course.
- Maintain a comprehensive portfolio of all research work.
- Present research at all stages of the work, at all available venues and competitions.
- Maintain regular, demonstrable contact with a mentor once one is obtained.
- Develop quarterly timelines, an end of year abstract, an annual reflection and an assessment of goals.
- Lastly, it is mandatory for all students to attend our annual science symposium and present poster of an article read (first year), or their work to date (second year) or their findings (third year). In addition to the posters, all Seniors will present a PowerPoint talk on their research findings.

**Location and Meetings:**

Every other week, for a full class period, each student meets one on one with the instructor, where the student's progress in developing a research plan and carrying out a project is discussed and evaluated. In addition, new goals are formulated for the next session. Also, the course meets formally five days a week as a research seminar, where students have the opportunity to discuss their findings with fellow classmates and work towards research goals. In this environment they are evaluated on progress towards research goals.

Grading Scheme: Grades are on an A-E scale and there are no S/U (pass/fail) options.

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Grade Scale	Grade Conversion	Grade Scale	Grade Conversion
93-100	A	73-76	C
90-92	A-	70-72	C-
87-89	B+	67-69	D+
83-86	B	63-66	D
80-82	B-	60-62	D-
77-79	C+	Grade < 60	E

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

Each individual meets once every two weeks one on one with the instructor. Each meeting is graded according to the student grading rubric. The final average is computed as follows:

*Course Segment Grading Categories:*

Conference Goals = 60%

Assignments = 40%

*Final Exam:*

Participation in the CHS Symposium = 10%

**Required materials:**

Portfolio Binder  
Research Notebook  
Flash-drive

**Course Requirements and Projected Dates:**

The requirements of this course include a minimum of thirteen hours of independent research in every two week cycle during the school year as well as a commitment to a minimum of 90 hours during the sophomore and junior summers. These hours must be documented in a Science Research Notebook, which must be brought to class for each independent session. In addition, other requirements include but are not limited to: weekly assignments, research plan, a final paper (with multiple drafts), abstract, mentor communication, the developing of quarterly timelines, an annual reflection, develop and carry out a summer plan and assessment of goals. Also, part of doing science is then communicating it to the community at large. Students will get practice presenting their work and ideas both in class and at competitions. Each year students are required to enter various competitions. Lastly, it is mandatory for all students to attend our annual science symposium and present a poster and PowerPoint presentation of their current progress in the program.

**Attendance policy:**

Attendance is required at all sessions, unless the student is at his/her specific research site conducting work. No more than 10 absences from the group sessions are allowed in the full year classes, and 2 absences in the summer classes (3 tardy equals 1 absence). Unexcused absences that occur on the day students are assigned to present results in failure for that day. An unexcused absence from an individual research meeting results in reduction of points on your biweekly grading sheet.

**Safety policy:**

Working in laboratories carries the potential for accidents. All students are expected to behave in a safe Manner.

**Online Expectations:**

All course materials and assignments will be posted through Microsoft Teams. Once you are enrolled, your school email will be added to the Carmel Science Research Team. Assignments will be submitted through Microsoft Teams. All classes will be streamed via Zoom. Zoom will be utilized to access the class period remotely. All course expectations remain the same whether student is remote or in person.

**Standards of Academic Integrity:**

The University at Albany expects all members of its community to conduct themselves in a manner befitting its tradition of honor and integrity. Members are expected to assist the University by reporting suspected violations of academic integrity to appropriate faculty and/or administrative offices. Behavior that is detrimental to the University's role as an educational institution is unacceptable. Claims of ignorance, of unintentional error, or of academic or personal pressures are not sufficient reasons for violations of academic integrity.

The following are examples of the types of behaviors that are defined as academic dishonesty and are therefore unacceptable: **Plagiarism:** Presenting as one's own work the work of another person. Plagiarism includes paraphrasing or summarizing without acknowledgment, submission of another student's work as one's own, the purchase of prepared research or completed papers or projects, and the unacknowledged use of research sources gathered by someone else; **Cheating on Examinations:** Giving or receiving unauthorized help before, during, or after an examination; **Multiple Submission:** Submitting substantial portions of the same work for credit more than once; **Sabotage:** Destroying, damaging, or stealing of another's work or working materials; **Unauthorized Collaboration:** Collaborating on projects, papers, or other academic exercises that is regarded as inappropriate by the instructor(s); **Falsification:** Misrepresenting material or fabricating information in an academic exercise or assignment; and **Bribery:** Offering or giving any article of value or service to an instructor in an attempt to receive a grade or other benefits not legitimately earned or not available to other students in the class. **Circumventing Security:** Users are prohibited from attempting to circumvent or subvert

any system's security measures. Users are prohibited from using any computer program or device to intercept or decode passwords or similar access control information. **Forgery:** Imitating another person's signature on academic or other official documents, including class material. **Theft, Damage, or Misuse of Library or IT Resources:** Removing uncharged library materials from the library, defacing or damaging library materials, intentionally displacing or hoarding materials within the library for one's unauthorized private use, or other abuse of reserve-book privileges. Any violation of the University's Responsible Use of Information Technology policy. This includes, but is not limited to, unauthorized use of the University's or another person's computer accounts, codes, passwords, or facilities; damaging computer equipment or interfering with the operation of the computing system of the University. The violations listed above should be reported to the UHS Program Office immediately. All parties involved will be directed accordingly.

### **Expectations Contract:**

- Student will be accountable for a work ethic aligned with college level work. (ie: meeting deadlines, initiative and goal setting, greater workload and responsibility).
- Participation in the Carmel Science Research Symposium is required. Student is at risk of a grade penalty if student fails to attend.
- Materials needed for the course include: 3" 3-Ring, D-Style Binder, Dividers (minimum of 19), Flash Drive, Single-Subject notebook or journal style notebook. A scientific time log will be provided to student.
- Attendance at student/teacher conference as originally scheduled must be a priority.
- Students must arrive on time and prepared for student/teacher conferences. Student is at risk of a grade penalty if student fails to attend.
- Spend and document a minimum of 13 hours every two weeks of work for science research. Estimate and record time spent on tasks in ¼ hour intervals (ie: .25, .50, .75, 1.25). Class time = 0.5 hour.
- *Seniors and juniors must enter the following competitions: Regeneron Science Talent Search, Westchester Science and Engineering Fair and Eastern Junior Science and Humanities Symposium. Sophomores must enter the Somers Science Fair. Student is at risk of a grade penalty if student fails to attend.*
- It is expected that the student follows the course timeline set by SUNY Albany and is encouraged to enroll in AP Statistics during the junior year.
- Student must check school email a minimum of once every two days.
- Document and create back up documents of all work.

*Students enrolled in Carmel Science Research are held to higher standards of accountability than students in mainstream high school courses. Grades will be determined by a student's work ethic (time management, ability to meet deadlines) and attitude (initiative, perseverance, responsibility, etc.)*

I have read and understand the syllabus and expectations of Carmel Science Research.

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Student name (please print)

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Date

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Student signature

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Parent/Guardian name (please print)

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Date

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Parent/Guardian signature