**Roanoke Valley Governor’s School for Science and Technology
Biotechnology
Syllabus 2023-2024
Cindy Bohland and Steve Villers**

1. **Course Information**
	1. **Course Description**

This course is designed to introduce students to the wide array of tools and applications in the area of biotechnology while allowing them to complete an experimental research project in a specific area of interest. The major themes in the course include DNA technology, the use of proteins and living organisms as tools in biotechnology, the ways in which biotechnology can be used to improve the quality of human life, and the ethical issues surrounding all of these areas. All students will write a scientific paper using VJAS format describing their research projects.

* 1. **Gifted education strategies**

In this class, students have the opportunity to explore in depth a topic of interest to them. Students ask questions based on individual interests and then design and perform a long-term experiment to answer the question experimentally. Students have the opportunity to work with state-of-the-art equipment here at RVGS.

1. **Grading Policy**
	1. **Grading Scale**

100-90% **A**

 89-80% **B**

 79-70% **C**

 69-60% **D**

 59-0% **F**

* 1. **Types of Evaluations**
		1. **Basics of biotech, current events, and ethical issues:** Students will complete a summer assignment in which they examine advances in biotechnology and the ethical issues surrounding future research. Throughout the fall semester, they will be introduced to the fundamental tools of biotech and will discuss selected current events.
		2. **Research Process:**
			1. **Pre-intersession work on Project:** During the first semester, students are expected to work on various aspects of their project including submitting a materials list and completing ISEF forms. Students are expected to conduct a literature review, contact outside experts if needed, and have regular communication with the teacher about their projects. Some students will begin their lab notebooks and actual experimentation during this time.
			2. **Intersession Work on Project:** During intersession, students will be graded on the quality of work devoted to the project. Students will be provided with rubrics, and grades will be based on teacher assessment as well as students self-assessment. Maintaining an up-to-date lab notebook and adhering to laboratory safety guidelines are critical components of the research process.
		3. **Research Paper:** Students will write a paper over the course of the school year. Students are expected to go through as many cycles of edits and revisions are necessary to complete a well-written paper. Student have the option to submit a paper to the VJAS symposium in May.
		4. **Research Presentation:**
			1. **PowerPoint Presentation:** Students may prepare and present a PowerPoint presentation for other science symposia. Students are expected to make revisions to improve their PowerPoint slides and oral presentation based on suggestions from the teacher and members of the class.
			2. **Project Forum Day:** All students are expected to participate in project forum.
			3. **Other Science Fairs and Symposia:** All students are expected to participate in all science fairs and symposia available to them. Failure to attend a science fair without prior approval from the teacher will result in a grade penalty.
	2. **Semester Grade Determination**

|  |  |  |
| --- | --- | --- |
| **1st Semester Grade Determination** |  | **2nd Semester Grade Determination** |
| Research Paper | 40% | Research Paper | 30% |
| Research Process | 30% | Research Process | 30% |
| Biotech Topics and Current Events | 30% | Research Presentation | 40% |

* 1. **Final Grade Determination**

The final grade is the average of the 2 semester grades.

1. **SEC Notification:** Per Virginia Code (§ 22.1-16.8), parents must be aware of the use of any instructional materials with explicit content.  No explicit materials are used in this course.
2. **Class Policies and Procedures**
	1. **Absences and tardies:** The policy in the RVGS student handbook will be followed.
	2. **Make-up Work:** Students, with excused absences, are expected to work out amended due dates with the instructor.
	3. **Late-work policy:** 25% percent per day (including weekends) will be deducted for work turned in late ***unless other arrangements have been made with the instructor in advance***.
	4. **Cheating:** The Governor’s School Honor Policy will be followed.
	5. **Technology Policy:** The RCPS Acceptable Use Policy and the RVGS student handbook policy will be followed.
	6. **Extra help:** I can help you best if you let me know as soon as you start to feel overwhelmed or behind on your work. Talk to me anytime or e-mail me.
	7. **Grade Access:** Parents and students will be able to view grades online. Most assignments will be graded within 5 school days of the due date.
	8. **Interim Reports:** A hard-copy of your current grade will be given to you to take home three times during each semester (see dates on the school calendar). The interim report is a snapshot of the current class average. Please feel free to discuss your report with your instructor.
	9. **Student Performance Strategy:** Interventions will be implemented at the teacher’s discretion or in the event that the student's grade falls below an 80.