**Course Syllabus for Biotechnology I**

*Cleveland High School Agriculture Department*

Instructor Information

**Instructor:** Mr. Zack Carscaddon **Room**: 507 **Email:** zacharycarscaddon@johnston.k12.nc.us **School Telephone**: 919-934-2455 ext. 507

**Planning**: 2nd Period **Website:** zacharycarscaddon.weebly.com

Course Overview

This course provides instruction in the technologically advanced world of agriculture and life sciences. Students are exposed to the latest techniques and advances in plant and animal biotechnology with a strong emphasis on hands-on activities. The FFA student organization and work-based learning experiences are integrated throughout this course to bring the scientific information to students for real-life application. Skills in biology, chemistry, and algebra are reinforced in this course. Supervised Agricultural Experience programs and FFA leadership activities are integral components of the course and provide many opportunities for practical application of instructional competencies. Agriscience Applications is a recommended prerequisite.

Course Outline

1. Leadership & Supervised Agricultural Experience
2. Introduction to Biotechnology
3. Agriculture Lab Equipment and Safety
4. Microbiology
5. Simple Mendelian Genetics
6. DNA and Genetics

Course Objectives

1. Provide all students with a foundation of biotechnology knowledge, common vocabulary, and skills.

2. Develop the leadership potential of students, while providing a variety of experience that will increase marketability to employers.

3. Gain a general knowledge of common equipment, facilities, and practices utilized in various aspects of biotechnology.

4. Develop a firm understanding of common breeds and opportunities throughout the North Carolina biotechnology industry.

Course Text

There are several sources of information for this course; the primary text used is Introduction to Biotechnology an Agricultural Revolution. A classroom copy of the text is available for student use in the course. Students **will not** be assigned a text for the course. If there is an assignment where the student will need a textbook over night, they may check one out with the instructor.

Course Website

Access to the syllabus, study guides, notes, and announcements can be found on my webpage. To access this, go to the Cleveland High School homepage, click Teacher Pages at the top navigation bar and click Career and Technical Education and there you will find my name, Zack Carscaddon.

Materials Required

3-ring binder

Notebook paper

Pencil/pen

Laboratory and Safety Information

This course will require students to participate in laboratory activities, and work experiences with possibility of class field trips.  Students must have a **safety contract** with the appropriate signatures on file with the teacher before participating in any class activity. All students in this course must make a perfect score on the Safety test before any student in the class may work in the shop or lab. Students will be given as many opportunities to take the test as needed to pass.

On several occasions, students will be required to wear safety apparel, such as closed toe-shoes and safety glasses. If students refuse or forget to wear safety apparel, they will not be allowed to participate and will be given an alternate assignment. With that being said, this class is likely different from any other class offered in school. Safety comes first. Students are not made to do anything they feel uncomfortable with, but it is important that all equipment and safety procedures are taken very seriously! If you have to think about it, it is probably not a good idea. If a student has any questions regarding safety in the lab or shop, the instructor should be asked.

Additionally, animal dissections are an essential part of the course. However, if students do not wish to participate, they are to make the teacher aware of their concern two weeks prior to the lab so that an adequate assignment can be given.

Academic Information

Grade Scale: A= 100-93 B= 92-85 C= 84-77 D= 76-70 F= 69-

*Late Assignments*: we will follow the standard school policy for late work in this class. Students will lose 10 points per day for up to three days per assignment.

*Make-Up Assignments:* Students must comply with all rules regarding absences in the school handbook. Makeup work will be given for excused absences, and can be picked up either a few days prior to, or immediately following an absence. All work should be submitted within 3 school days of the absence or will be considered late. Under certain circumstances missed lab work may need to be completed before or after school; however, this is left to the discretion of the instructor.

If you need help with any class material, need to use the equipment or simply want a place to study, I will be the room most days both before school and after school. Designated CTE days for Power Lunch are also a great opportunity to come in for additional help or to make-up work.

Grading Procedures

Students’ grades will come from several areas including: tests, assignments, shop/lab work, group work, and Supervised Agricultural Experience Program

40% - Tests/Projects

30% - Quizzes

30% - Classwork/Homework

Retests: Students are allowed to retake all tests as long as they attend a tutorial to review before the retake. Any test that a student receives below a 70 is required to be retaken. The new score will replace the old score.

All students of Career and Technical Education (CTE) courses are required to take the NC CTE Post-Assessment at the end of the semester. This exam will be the final exam for the class and will count for 15% of the student’s final grade. Seniors are not exempt from the CTE Post-Assessment.

Supervised Agricultural Experience (SAE)

Students in Animal Science I are required to have an on-going Supervised Agricultural Experience. An SAE is a program in which students perform activities, related to classroom instruction, after school hours. 15 hours of an SAE will be required at the end of the semester and a paper/presentation on the SAE made. The SAE will be graded on several components. The components are AET Tracker updates, Record Book Submission, and Paper/Project Presentation. Students are encouraged to keep up with their leadership activities through the semester in their Record Books in order to better prepare themselves for filling out scholarships and job applications. Ideas for this will be given out in class during the first few weeks of school. Extra credit will be given for leadership activities. More information on SAE project will be given later

FFA (Student Organization)

FFA Activities are an integral part of the learning experience in Agricultural Education. Students will be exposed to the FFA during this course. All students are highly encouraged to participate in the FFA Organization.  Some opportunities offered by the FFA are local activities, career development events, travel and awards (scholarships).  The local chapter meets every month with a banquet in May.  FFA dues are $15.00 per student.  When the class reaches 100% FFA membership, students will receive a class meal. Along with this all FFA members are allowed to eat lunch in the shop whenever an Advisor is on duty to let you do so.

Class Guidelines

Rules

1. Be in the classroom and seated when the bell rings.

2. Be prepared for class.

3. Be respectful to others.

4. Be courteous and keep workstation clean.

5. Be a good listener and follow directions.

6. Follow ALL school rules and procedures

Consequences

1. First time a rule is broken: reminder to the class.

2. Second time: Warning to student

3. Third time: Conference with student – Parent Contact

4. Fourth time: Send to ISS, Parent contact

5. Severe: Sent to Assistant Principal/ISS

Rewards

Students who comply with the rules receive:

1. Praise

2. Positive notes sent home

4. Ag Opportunities/Field Trips

Classroom Needs

If you are interested in making a donation to our classroom, your generosity is very much appreciated!

Kleenex

Paper Towels

Expo Markers

Latex Gloves

Play-dough/modeling clay

*STUDENT INFORMATION FORM*

***Cleveland High School Agriculture Department***

Please complete all items, and sign this form. This is for my personal records and will not be seen or shared with anyone else. I need up to date contact and medical information due to the hands-on nature of this course. We need to be aware of any medical items or allergies in case something happens during one of our outside labs to best handle an emergency. Thank you for your assistance.

Course enrolled\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Last First Middle

Mailing Address

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Home Phone \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Your Student ID # \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Present Age\_\_\_\_\_\_\_\_ Date of Birth \_\_\_\_\_\_\_\_\_\_\_ E-Mail\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Father’s Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Occupation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Emergency Number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ E-Mail\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mother’s Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Occupation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Emergency Number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ E-Mail\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

DAILY CLASS SCHEDULE

Subject/Course Teacher Room

1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_

**(CONTINUED ON BACK)**

Do You Have any Medical Conditions that I should be aware of: YES NO

If Yes, List below\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Are you allergic to any items? Ex: Bee Stings YES NO

If Yes, List below\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is there any other information that I need to be aware of about your student? YES NO

If Yes, List below\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PLEASE SIGN TO VERIFY THE INFORMATION ON THIS FORM

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_

Student Signature Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_

Parent Signature Date

**Parent/Guardian and Student Contract**

I have read and understand the Course Syllabus for Agriculture Applications I that was presented on the first day of class by Mr. Carscaddon. I am satisfied with the course schedule, grading procedures, discipline procedures, and requirements for which the students of Animal Science I will be held responsible. If I have any questions regarding the outline, I will contact Mr. Carscaddon for more information and clarification. Furthermore, I understand by county school board policy, it is the student’s responsibility to ask the teacher for make-up work and have all missing assignments completed within 3 days of absence, either excused and unexcused. I also understand that the students of this course are required to be prepared every time they are in class which includes a #2 pencil on test days, a pen or pencil every day and blank notebook paper every day. If a student is consistently unprepared for class, I agree that they should be sent to ISS for that class period and still responsible for the work they missed during class that day.

Safety is a primary concern in the agriculture department. Students will be using computers and equipment for various course activities. It is imperative that students be aware of their surroundings and others around them while using this equipment. Students should not engage in rough housing with other students or play around with the equipment. Although our students are high school level, we still expect them to follow basic safety rules and exercise common sense within our classrooms, greenhouse, and shop areas. In addition to being safe, we expect students to handle their equipment appropriately at all times. If equipment is broken due to the student rough housing or playing around, they will be expected to pay for the equipment or work in the agriculture department to pay off what they owe.

Students: I have read this Contract and understand it. I will honor it while in the agriculture department.

Signature: Date:

Parent/Guardian: My child has discussed this plan with me. I understand it and will support the agriculture department.

Signature: Date:

**SUPERVISED AGRICULTURAL EXPERIENCE (SAE)**

**Project Guidelines:**

Supervised Agricultural Experience is an integral part of the Agriculture program and to get every student involved, each student is required to develop and complete a project. This project is a major component of the grade in this course. While many of the projects that we complete in this class will be done during class time, this is a project that is to be completed outside of class and must deal with Agriculture; preferably a topic in animal science for this specific course. There are several requirements and students need to read the instructions carefully so that they are able to gain full credit for all assignments.

Included is a rubric which includes the assignments each student needs to complete for their SAE project. Each is followed by a brief description of what is required to gain full credit. It is important for students to know that there is a minimum requirement of 20 hours to be completed on the SAE project and this needs to be reflected in both the project proposal as well as in the written record. Each student will use the AET SAE record book online to record their information, as well as a record book to be completed in class. Each Monday, students will have an opportunity to update the paper and electronic record books.

It is important to remember that this is a project that should last the entire semester. Due to the nature of the requirements students need to keep accurate records, notes and document their efforts as they progress with their project. Students will be given access to the AET SAE record book online. Extra credit may be given for students who go above and beyond on their SAE project, as well as any leadership opportunities that students complete during the semester. This form needs to be turned in no later than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and signed by a parent or guardian.

**PARENT/GUARDIAN SIGNATURE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**STUDENT SIGNATURE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**TEACHER SIGNATURE/APPROVAL: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**REQUIREMENTS:**

1 page project proposal (Due September )

Details what the project is going to be

Names the type of SAE the project falls into

Estimates the number of hours the student plans to work on the project (minimum 20)

Names any supplies that may be needed for the project (how much they will be, how they will get the supplies, etc.)

Written records of hours and activities (1st quarter- Due October )

Short explanation of what was completed on the project

A detailed record of hours spent working on the SAE project

Completed SAE record book-

Written records of hours and activities (2nd quarter – Due January )

Completed SAE record book

A detailed record of hours spent working on the SAE project

Short explanation of what was completed on the project

Presentation (Due January )

Can be a PowerPoint, slideshow, poster, etc.

Student needs to make a 2-5 minute presentation to the class about their SAE project

Displays the progress of the project over the course of the semester

Final submission

Should provide a statement of the beginning goals of the project

Overview of the project

What was accomplished

What would/should have been done differently

Describe the overall experience (is this a continuing project, was it enjoyable, etc.)

Special Notes

* Students will be given time in class to update electronic and paper record books. Students may update the AET Tracker at school, at home, or anywhere there is internet connection.
* The AET Tracker will complete many of the written reports needed for the class (such as the Completed Record Book). The expectations set forth for the completed record book will be shard during the class instruction on SAE and the AET Tracker.
* Opportunities for students to complete the SAE Project requirement will be afforded before and after school. These opportunities are given for students who may not have access to other ways of completing the project. Please consult with the instructor for more information on these opportunities.
* Employees or students of Johnston County Schools who feel that they have been discriminated against because of their sex, race, age, or handicapping condition should contact: Mr. D. Ross Renfrow, Johnston County Schools, Post Office Box 1336, Smithfield, NC 27577, (919) 934-6031