**Arcola High School**

**Department of Agricultural Education**

**Biological Science Applications in Agriculture**

**2011-2012**

**Teacher: Mrs. Vander Kuur**

**Office hours: M-F 7:30-8:15 & 3:00-3:30**

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**Website:** [**http://mrsvanderkuur.weebly.com/**](http://mrsvanderkuur.weebly.com/)

**Course Description**: This course is designed to reinforce and extend students’ understanding of science by associating basic scientific principles and concepts with relevant applications in agriculture. Students will examine major phases of plant growth and management in agriculture and the specific biological science concepts that govern management decisions, as well as examine many phases of animal agriculture and specific biological science concepts that govern managing decisions in the animal industry. Some sample topics include: agriculture research methodology, growth and development of animals (embryology, ethnology, nutrition, and immunity systems), processing animal products (preservation, fermentation and pasteurization). Students will maintain an SAEP and be encouraged to be a member of the FFA organization. BSAA meets lab science entrance requirements to Illinois universities and receives a science credit at Arcola.

**Course Objectives:**

* Relate readings to prior knowledge and experiences to make connections to real settings.
* Produce, edit, revise, format written work with the correct citations when necessary for real situations.
* Apply listening skills in practical settings while working in groups and when delivering presentations to their peers.
* Develop a research plan using multiple sources and multiple formats.
* Represent and organize data by creating lists, charts, tables and graphs.
* Conduct controlled experiments or simulations to test hypothesis.
* Relate science to agricultural concepts and demonstrate these similarities through individual and group projects.

**Course Grading:**

**High school is the preparation for higher education and work experience and therefore, you should help yourself prepare by completing your homework to the best of your ability and on time.**

**Course Materials:**

* Necessary writing utensils
* Lined paper
* Calculator
* Hair ties
* No loose clothing
* Recommended 3-ring binder

**Standards for Written Work:** I firmly believe that all students should turn in work that has been read thoroughly by not only by themselves, but also checked in spell check. While this course is an “agriculture” course, it is imperative that you, the student, work on perfecting your writing for future professional needs. Also, I will ***NOT*** grade any written work that has been plagiarized. These written assignments will be given an immediate zero and it will be reported to the principal.

**Due Dates for Assignments:** Due dates will be written on the “homework” board and will remain there until the due date has passed. It is your responsibility to keep track of due dates within a date book, assignment notebook, etc.

**Late Work:** Late work will not be accepted unless permission has been given by the teacher or you have an excused absence the day the assignment is due. If you have an excused absence on the day that an assignment is given, please look for your missed work on the bulletin board just outside the classroom door. It is your responsibility to check this board and complete assignments by the due date.

**Extra Credit:** There will be many opportunities for you to participate in Extra Credit. However, there are three opportunities all students:

Box of Kleenex – 5 points (one time only)

Word of the Week – 2 points each week

Test recheck – ½ credit back

**Classroom Expectations:**

* **RESPECT: I will treat you with respect and will expect you to treat others in the same manner.**
* **RESPONSIBILITY: It is your responsibility to be aware of any due dates, changes, upcoming events and anything else discussed in class. Anything covered during this course is fair game to be included on a test. If you have questions or comments about the content, it is your responsibility to contact me prior to the test for clarification. It is also your responsibility to behave safely and appropriately when working in the shop, laboratories or classroom.**
* **READY: Come prepared to class. This means, you are not only expected to bring all class materials, but also your attention.**

**Participation:** Students are expected to engage in classroom activities and discussions. This course will be full of hands-on experiences in which can be tied to real-life circumstances.

**Exceptions:** I understand that family and school activities can interfere with school work and class attendance. If you ever need to talk to me about an assignment, course content or anything not mentioned, please do not hesitate to talk to me before or after school/class. We will then talk to come to a conclusion that will meet both of our needs.

**Schedule (subject to change):**

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| **Week** | **Topics Covered** |
| **8/22 – 8/26** | **Introductions, Paperwork, Supervised Agricultural Experience Overview** |
| **8/29 – 9/2** | **Lab Safety** |
| **9/6 – 9/9** | **Research Methods** |
| **9/12 – 9/16** | **Research Methods Cont. Research Problem Example** |
| **9/19 – 9/23** | **Introduction to Cell Biology** |
| **9/26 – 9/30** | **Biotechnology, Plant Cell Processes** |
| **10/3 – 10/6** | **Sustainable Agricultural Practices, Water Quality** |
| **10/11 – 10/14** | **Pollutants, Biofuels** |
| **10/17 – 10/21** | **Record Book Activities/Updates** |
| **10/24 – 10/26** | **Heredity, Tissue Testing** |
| **10/31 – 11/4** | **Plant Growth, Photosynthesis** |
| **11/7 – 11/9** | **Photosynthesis Cont.**  |
| **11/14 – 11/18** | **Chromatography, Transpiration** |
| **11/21 – 11/22** | **Record Books** |
| **11/23 – 11/27** | **Thanksgiving Break** |
| **11/28 – 12/2** | **Hydroponics** |
| **12/5 – 12/9** | **Plant response to Herbicides** |
| **12/12 – 12/16** | **Parts of a flower** |
| **12/19 – 12/21** | **Exams** |
| **12/22 – 1/2** | **Christmas Break** |
| **1/3 – 1/6** | **Record books, Updates** |
| **1/9 – 1/13** | **Animal Genetics** |
| **1/16 – 1/20** | **DNA Extraction** |
| **1/23 – 1/27** | **Chick Embryology** |
| **1/30 – 2/3** | **The Swine Industry, Hatching and Brooding** |
| **2/6 – 2/10** | **Animal Nutrition** |
| **2/13 – 2/17** | **Starch Digestion, Protein Digestion** |
| **2/21 – 2/24** | **FFA WEEK** |
| **2/27 – 3/2** | **Animal Health, Veterinary Science** |
| **3/6 – 3/9** | **Veterinary Science, Antibiotics vs. Bacteria** |
| **3/12 – 3/16** | **Animal Reproduction** |
| **3/19 – 3/23** | **Animal Reproduction, Artificial Insemination, Sperm Motility** |
| **3/26 – 3/30** | **Introduction to Food Science, Oxidative Rancidity** |
| **4/2 – 4/6** | **Controlling Molds with food Additives, Testing for Additives** |
| **4/9 – 4/13** | **Spring Break** |
| **4/16 – 4/20** | **pH and Fermentation, Record Books** |
| **4/23 – 4/27** | **Meat Science, Curing, Salt as a Food Preservative** |
| **4/30 – 5/4** | **Chemistry of Popcorn** |
| **5/7 – 5/11** | **Pressure and Boiling Points** |
| **5/14 – 5/18** | **Making Cheese and Ice Cream** |
| **5/21 – 5/23** | **Exams** |
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**Below is an area for you to keep track of your grades so that you can see where you are at grade-wise over the entire school year. If more pages are needed, please ask and I will print out extras.**

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