This document contains student competency requirements for the specialized area of:

**Plant Science I,**
**AGPR 113**
**3 Credits**

To receive college credit, a student must complete at least 80% of the competencies. The high school instructor must initial each competency area that is successfully completed by the student. By initialing these competencies, the instructor is assuring that the student has completed the required work at a level that should receive college credit.

**Revision Date:** January 2008
# PLANT SCIENCE I.

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Student Name: __________________________________________

High School: ____________________________________________

Student SS#: ____________________ / SID Number _______________

Instructor signature verifying successful completion of course competencies and awarding of local grade of A or B:

__________________________

(signature)

Date: _________________
Plant Science I.

Rating Scale for Performance Tasks:

*Plant Science I. involves a basic study of plant science designed to provide a practical understanding of plant anatomy, morphology and growth of plants.*

4 - Highly Skilled/Proficient
   - Student can complete the competency accurately.
   - Student can direct others to do the competency.
   - Student needs little supervision.
   - Written tests, 90%

3 – Skilled/Performs with Minimum Supervision
   - Student can perform all parts of the competency.
   - Student needs only completed work spot-checked.
   - A student meets speed and accuracy requirements (if any).
   - Student needs minimum supervision.
   - Written tests, 80%

2 - Limited Skills/Performs with Close Supervision
   - Student can perform most parts of the competency.
   - Student needs help with only the most difficult parts.
   - Student needs close supervision.
   - Written tests, 70%

1 – Exposure/Introductory
   - Student can do simple basics of this competency with very close supervision.

0 - No exposure/Not Taught
   - Student has had no exposure to this competency
In Plant Science, AGPR 113, there is required documentation noted in the competency sections. Please make sure the documentation is included in the Portfolio. If these items are not included, credit will not be given for the class.

Also, please limit the Portfolio to include only those items requested. Class notebooks will not be accepted.

For Plant Science I, AGPR 113, the following items are required:

1. Two Laboratory Reports – These will be an example of an exercise dealing with Plant Science and include questions about the laboratory exercise. These will have the instructor’s grade and comments included.

2. Term Paper – This document should demonstrate student knowledge of the subject covered. All papers must be properly referenced including footnotes as appropriate and a bibliography. It is expected that the paper will have a recorded grade and instructor evaluation comments included.

3. Final Test – The student’s final exam for the class shall be included in the portfolio. The final exam must indicate the student’s final grade and any relevant comments from the instructor.
UNIT 1: Orientation to Horticulture and Plant Science

1.1 The student shall gather information from Washington Occupational Information System and or Discovery system on specific careers related to Horticulture and Plant Science. Examples: Agronomist, Entomologist, Plant Geneticist, Golf Course Superintendent, Viticulturist, Water Management Specialist, etc.

1.2 The student shall list high school activities, including classes, which would help prepare for a plant science or plant science related career.

1.3 The student shall identify resource people in the community, education and/or industry that would give career guidance in the plant science area.

UNIT 2: Cells and Tissues

2.1 The student shall diagram a typical plant cell, labeling all parts.

2.2 The student shall demonstrate knowledge of the major steps of cell division.

2.3 The student shall define and locate tissue systems in the stem.

2.4 The student shall demonstrate knowledge of the meristemic regions of a plant and what occurs at these points.

2.5 The student shall describe cell structure in roots and how growth and movement occur.

2.6 The student shall be able to discuss structure and significance of stomata in plants.

2.7 The student shall be able to define and locate leaf cells and tissues.

UNIT 3: Plant Anatomy

3.1 The student shall identify the major tissue systems and their functions of plant roots by comparing and contrasting tap, fibrous and adventitious roots.

3.2 The student shall compare and contrast rhizomes and stolens.
3.3 The student shall demonstrate knowledge of the functions of the root system including absorption, conduction, anchorage and storage.

3.4 The student shall identify the seven inflorescence patterns common to horticulture plants.

3.5 Given a flower, the student shall distinguish different types of ovaries, label their parts and know their functions.

3.6 The student shall dissect and identify the parts of a flower.

3.7 The student shall demonstrate distinguishing between flower types.

3.8 The student shall diagram both a monocot seed and a dicot seed with major parts labeled.

3.9 The student shall identify and describe the function of various seed parts.

3.10 The student shall label a cross section of a leaf and demonstrate how leaves are used as classifying material.

3.11 The student shall classify tissue layers within a leaf including epidermis, vascular bundles and mesophyll.

3.12 The student shall identify and label characteristics of a broadleaf.

UNIT 4: Reproductive Process and Genetics

4.1 The student shall demonstrate knowledge of seedling germination and emergence in plants and the morphological features of plants.

4.2 The student shall demonstrate knowledge of the conditions necessary for seed germination such as temperature, moisture, media and seed viability.

4.3 The student shall demonstrate knowledge of the pollination steps for both self-pollination and cross pollination.

4.4 The student shall demonstrate knowledge of the planting and propagation of bulbs.

UNIT 5: Plant Classification

5.1 Given diagrams the student shall identify monocotyledon verses dicotyledon stems.
5.2 The student shall classify plants as to filicine, gymnosperm and angiosperm (monocot or dicot).

5.3 The student shall list the characteristics of monocots verse dicots by comparing leaf, stem, flower and root systems.

5.4 The student shall demonstrate the ability to write scientific names and explain their relationship to Family, Genus, Species and Variety.

5.4 The student shall list the characteristics of monocots verse dicots by comparing leaf, stem, flower and root systems.

UNIT 6: Growth and Development

6.1 The student shall demonstrate knowledge of the ability to trace the movement of water, minerals and simple sugars through the conductive tissues in the plant.

6.2 The student shall demonstrate knowledge of the water cycle and growth of plants.