

## MAJOR IN BIOTECHNOLOGY (2013-2014)

### Plant

Date: \_\_\_\_\_ ID: \_\_\_\_\_ Name: \_\_\_\_\_

E-mail: \_\_\_\_\_ Phone: \_\_\_\_\_

**English Composition Requirement**.....0-8  
(See College requirement) \_\_\_\_\_

**Upper Division Composition** (may overlap with English Composition Requirement).....4  
One of: UWP 101, 102A, 102B, 102C, 102D, 102E, 102F, 102G, 102H, 102I, 102J, 102K,  
102L, 104A, 104B, 104C, 104D, 104E, 104F, 104I, 104T

**Breadth/General Education**.....24-32  
(See University requirement)

- General Education II**
- General Education III**
- IGETC**

**Preparatory Subject Matter**.....58-66

\_\_\_ PLS 120 (4), Applied Statistics in Ag. Science (F); or STA 100 (4), Applied Statistics for Bio. Sciences (FWSU)

\_\_\_ BIT 1 (4), Introduction to Biotechnology (S)

\_\_\_ BIS 2A (5), Intro. Biology (FWSU)

\_\_\_ BIS 2B (5), Intro. Biology (FWSU)

\_\_\_ BIS 2C (5), Intro. Biology (FWSU)

\_\_\_ CHE 2A (5), General Chemistry (FWU)

\_\_\_ CHE 2B (5), General Chemistry (WSU)

\_\_\_ CHE 2C (5), General Chemistry (FSU)

\_\_\_ Organic Chemistry, select one of the following groups:

\_\_\_ CHE 8A (2), Organic Chem.: Brief Course (FSU); and

\_\_\_ CHE 8B (4), Organic Chem.: Brief Course (FWU); or

\_\_\_ CHE 118A (4), Organic Chem. For Health and Life Sciences (FWSU); and

\_\_\_ CHE 118B (4), Organic Chem. For Health and Life Sciences (FWSU); and

\_\_\_ CHE 118C (4), Organic Chem. For Health and Life Sciences (FWSU); or

\_\_\_ CHE 128A (3), Organic Chem. (FW); and

\_\_\_ CHE 128B (3), Organic Chem. (WS); and

\_\_\_ CHE 128C (3), Organic Chem. (FS).; and

\_\_\_ CHE 129A (2), Organic Chem. Lab (FW)

\_\_\_ Math, select one from the following groups:

\_\_\_ MAT 16A (3), Short Calculus (FWSU); and

\_\_\_ MAT 16B (3), Short Calculus (FWSU); or

\_\_\_ MAT 17A (4), Calculus for Bio and Med (FWS); and

\_\_\_ MAT 17B (4), Calculus for Bio and Med (FWS); or

\_\_\_ MAT 21A (4), Calculus (FWSU); and

\_\_\_ MAT 21B (4), Calculus (FWSU)

\_\_\_ PHY 7A (4), General Physics (FWSU)

\_\_\_ PHY 7B (4), General Physics (FWSU)

- Depth Subject Matter.....16-20**
- \_\_\_ BIS 101 (4), Genes and Gene Expression (FWSU) *BIS 2C; CHE 8B or 118B or 128B*
  - \_\_\_ BIS 104 (3), Regulation of Cell Function (FWSU) *BIS 101 and (102 or 105)*
  - \_\_\_ MCB 121 (3), Molecular Biology of Eukaryotic Cells (FWS) *BIS 101 and (103 or 105)*
  - \_\_\_ BIT 171 (3), Professionalism and Ethics in Genomics and Biotechnology (FWS) *UD standing/natural science major*
  - \_\_\_ 192, Internship; and/or 199, Independent Research; and/or BIT 189L, Laboratory Research in Genomics and Biotechnology; (3 total) (FWSU) *consent of instructor*
  - \_\_\_ BIT 188 (3), Undergraduate Research Proposal (S) *upper div. standing (Optional)*
  - \_\_\_ BIT 194H (1), Honor's Undergraduate Thesis (Optional)

**Specific Course Requirements.....28-35**

- \_\_\_ Biochemistry, select one of the following groups:
  - \_\_\_ BIS 105 (3), Biomolecules and Metabolism (FWS) *BIS 2C; CHE 8B or 118B or 128B*
  - \_\_\_ BIS 102 (3), Structure and Function of Biomolecules (FWSU) *CHE 8B or 118B or 128B;*
  - \_\_\_ BIS 103 (3), Bioenergetics and Metabolism (FWSU) *BIS 102*
  - \_\_\_ ABI 102 (5), Animal Biochemistry and Metabolism (F) *CHE 8B or 118B or 128B;* and
  - \_\_\_ ABI 103 (5), Animal Biochemistry and Metabolism (W) *ABI 102*
- \_\_\_ MIC 101 (5), Introductory Microbiology (FWSU) *BIS 2A, CHE 2B (may be taken concurrently)*
- \_\_\_ PLB 126 (3), Plant Biochemistry (W) *BIS 103 or 105*
- \_\_\_ PLS 152 (4), Plant Genetics (F) *BIS 2A*
- \_\_\_ BIT 160 (3), Principles of Plant Biotechnology (W, not W14) *PLS 152 or BIS 101*
- \_\_\_ BIT 161A (6), Genetics and Biotechnology Lab (WU) *PLS 152 or BIS 101*
- \_\_\_ BIT 161B (4), Genetics and Biotechnology Lab (S) *PLS 152 or BIS 101*

**Restricted Electives.....10**

**Select at least once course from each of the areas:**

**A. Pests, Pathogens and Production**

- BIS 181 (3) Comparative Genomics (F) *BIS 101***
- BIS 183 (3) Functional Genomics (S) *BIS 101; course 102 or 105 recommended***
- BIT 150 (4), Applied Bioinformatics (Not being offered) *ECS 10 or 15, or PLS 21; BIS 101 and 104; PLS 120 or STA 13 or 100***
- BIT 188 (3), Undergraduate Research Proposal (S) *upper div. standing***
- CHE 130A (3), Pharmaceutical Chemistry (WS) *CHE 118C or 128C***
- CHE 130B (3), Pharmaceutical Sciences (S) *CHE 130A***
- ECS 124 (4), Theory and Practice of Bioinformatics (S) *ECS 10 or 30, or ENG 6, STA 100***
- ENT 110 (5), Arthropod Pest Management (W) *BIS 2C***
- EVE 100 (4), Introduction to Evolution (FWSU) *BIS 2C; BIS 101; MAT 16C; STA 13 or 100***
- MIC 115 (3), Recombinant DNA Cloning and Analysis (F) *BIS 101***
- MIC 162 (4), General Virology (W) *BIS 102 or 105***
- MCB 120L (6), Biochemistry Lab (FWSU) *BIS 103 (may be taken concurrently)***
- MCB 164 (3), Advanced Eukaryotic Genetics (S) *MCB 121***
- MCB 182 (3), Principles in Genomics (W) *BIS 101***
- NEM 100 (4), General Plant Nematology (F of even years) *BIS 2C or 10; or NEM 110 (2) Introduction to Nematology (W) BIS 2C or equiv. or consent of instructor***
- PLP 120 (4), Introduction to Plant Pathology (FS) *BIS 2C; MIC 101 recommended***
- PLP 123 (3), Plant-Virus-Vector Interaction (F odd years) *BIS 2C, 101; PLB 105, PLP 120, and ENT 100 recommended***
- PLP 130 (3), Fungal Biotechnology and Biochemistry (S) *BIS 103***
- PLP 140 (4), Agricultural Biotechnology, Ethics and Public Policy (S) *none***
- PLB 143 (4), Evolution of Crop Plants (S) *PLS 2 or BIS 2C***
- PLS 153 (4), Plant, Cell Tissue and Organ Culture (not currently offered) *BIS 2C or PLS 2***
- PLS 154 (4), Introduction to Plant Breeding (W) *PLS 152, BIS 101 or consent of instructor***
- PLS 172 (4), Postharvest Physiology and Handling of Horticultural Commodities (F) *PLS 2 or BIS 2C***
- PLS 173 (3), Molecular and Cellular Aspects of Postharvest Biology (S even years) *PLS 2 BIS 2C***
- PLS 174 (3), Microbiology and Safety of Produce (F odd years) *PLS 2 or BIS 2C***

**B. Growth and Development**

- BIT 150 (4), Applied Bioinformatics (Not being offered) *ECS 10 or 15, or PLS 21; BIS 101 and 104; PLS 120 or STA 13 or 100***
- BIT 188 (3), Undergraduate Research Proposal (S) *upper div. standing***
- EVE 100 (4), Introduction to Evolution (FWSU) *BIS 2C; BIS 101; MAT 16C; STA 13 or 100***
- MCB 120L (6), Biochemistry Lab (FWSU) *BIS 103 (may be taken concurrently)***
- MIC 115 (3), Recombinant DNA Cloning and Analysis (F) *BIS 101***
- PLB 105 (5), Developmental Plant Anatomy (F) *Introductory plant biology (e.g., BIS 2C)***
- PLB 111 (3), Plant Physiology (F) *BIS 2C; CHE 8B and PHY 7C (either may be taken concurrently)***
- PLB 112 (3), Plant Growth and Development (W) *BIS 2C, CHE 8B***
- PLB 113 (3) Molecular and Cellular Biology of Plants (S) *BIS 2C; BIS 101; BIS 102 or 105***
- PLP 140 (4), Agricultural Biotechnology, Ethics and Public Policy (S) *none***
- PLS 100A (3), Plant Metabolic Processes (F) *PLS 2, BIS 2C***
- PLS 100B (3), Plant Growth and Yield (W) *PLS 100A or equivalent***
- PLS 100C (3), Plant-Environment Interactions (S) *PLS 100A***
- PLS 100AL (2), Plant Metabolic Processes Lab (F) *PLS 100A (may be taken concurrently)***
- PLS 100BL (2), Plant Growth and Yield Lab (W) *PLS 100B (may be taken concurrently)***
- PLS 100CL (2), Plant-Environment Interactions Lab (S) *PLS 100C (may be taken concurrently)***
- PLS 157 (4), Physiology of Environmental Stresses in Plants (not currently being offered) *PLS 100C or PLB 111 or PLB 112 or ENH 102 or VEN 110***
- PLS 158 (4), Mineral Nutrition of Plants (S odd years) *PLS 100A or PLB 111 or ENH 102 or VEN 110***