MEPS 605/HORT607
Plant Biochemistry

Spring Semester 2018

Syllabus

Credits	3
Lecture time	Tue and Thu, 8:00-9:15 am, HFSB 101
Instructors	Dr. Hisashi Koiwa, Department of Horticultural Sciences HFSB, Room 522 Phone: 845-5282 E-Mail: koiwa@neo.tamu.edu Office hours: by appointment
Course website	https://www-horticulture.tamu.edu/courses/
Prerequisites	BICH 410; MEPS 313 or equivalent
Scope	The overall objective of the course is to provide the student with the tools to understand the fundamental metabolic pathways in plants
Learning objectives and outcomes	Upon successful completion of this course you will be able to: • Understand and explain assimilation mechanisms for the major inorganic nutrients, such as carbon, nitrogen, sulfur. • Understand and pathway and experimental approach for biosynthesis of plant natural products • Design experiments and interpret results in plant biochemistry
Topic area (number of lectures)	• Photosynthesis and carbon assimilation (6) • Lipid biochemistry (2) • Amino acid biosynthesis (5) • Natural products o Terpenoids (4) o Alkaloids (2) o Phenolics (3)
Grading	Points % Two exams (200 points each) 200 80% Student presentation 20 20% Grading scale A=100-90, B=89-80, C=79-70, D=69-60, F<59
Assigned Readings	Recent scientific articles, which will be provided electronically or on hardcopy, will be used as the main source of reading/studying material.
Suggested textbooks	• Biochemistry and Molecular Biology of Plants (Buchanan) 2015 • Plant biochemistry (Caroline Bowsher, Martin W. Steer, Alyson K. Tobin) Garland Science (2008) ISBN 0815341210 tamug.3012543
Examination policy	If a student is caught cheating on an exam, the student will be given a "0" grade for that exam. Violations will be handled in accordance with the Texas A&M University regulations governing academic integrity.

Attendance	The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at http://student-rules.tamu.edu/rule07
Changes in schedule	The instructors reserve the right to change the order and content of lectures as necessary. Exam dates may be changed by the instructors, but at least 5 days notice will be given.
Americans with Disabilities Act (ADA) Policy Statement	The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.
Copyrights	Please note that most handouts and supplements used in this course are copyrighted. This includes all materials generated for this class, including but not limited to syllabi, exams, in-class materials, review sheets, and lecture outlines. Materials may be downloaded or photocopied for personal use only, and may not be given or sold to other individuals.
Scholastic Dishonesty	As commonly defined, plagiarism consists of passing off as one's own ideas, work, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty."
Aggie Honor Code	**"An Aggie does not lie, cheat, or steal or tolerate those who do"** Students are expected to attend all studios, complete assignments on time, and participate fully in class discussions and group projects. Violations will be handled in accordance with the Texas A&M University Regulations governing academic integrity, which are outlined at the Aggie Honor System wed page http://aggiehonor.tamu.edu/. Please refer to the Texas A&M University website on Plagiarism and Scholastic Dishonesty for resources and a detailed explanation of what constitutes plagiarism.

Tentative Lecture Schedule

Lecture #	Topic	Instructor
1	Introduction, paper assignment	Koiwa
2	Nature of light	Koiwa
3	Photochemistry, Electron and energy transfer	Koiwa
4	Carbon fixation	Koiwa
5	Synthesis and degradation of starches	Koiwa
6	Synthesis of sucrose and cellulose	Koiwa
7	Ascorbic acid	Koiwa
8	Nitrogen assimilation, Sulfur assimilation.	Koiwa
9	Aromatic amino acids, herbicide action	Koiwa
10	Branched chain amino acids, herbicide action	Koiwa
11	Aspartate-derived amino acids: Biotechnologies, proline, methionine, lysine.	Koiwa
12	Special lecture by Dr. Vijay Joshi (amino acid metabolomics)	Guest
13	Lipid Biochemistry-1	Guest
14	Lipid Biochemistry-1	Guest
15	Student Presentation	Koiwa
16	Exam 1 (40%)	Koiwa
17	Terpenoids 1	Koiwa
18	Terpenoids 2	Koiwa
19	A special lecture by Dr. Timothy P. Devarenne (Terpenoid biofuel)	Guest
20	A special lecture by Dr. Keerti Rathore (Gossipol biosynthesis)	Guest
21	A special lecture by Dr. Pierson (Plant-microbe interaction)	Guest
22	Alkaloids 1	Koiwa
23	Alkaroids 2	Koiwa
24	Phenylpropanoids, phenolics 1: Lignins, etc	Koiwa

25	Phenylpropanoids, phenolics 2: Flavonoids	Koiwa
26	Paper presentation/discussion	Koiwa
27	Final 40%	Koiwa