

ABE 6654C: ADVANCED BIO-BASED PRODUCTS FROM RENEWABLE RESOURCES

- 1. Catalog Description:** 3 *credits*. This course is to provide the knowledge for the production of fuels, chemicals and materials from renewable resources. The course includes the fundamental principles and practical applications of bio-based products: biorefinery and biobased products overview, fundamental concepts in understanding biorefinery and biobased products; materials, chemical platforms, and fuels from biomass.
- 2. Pre-requisites and Co-requisites:** CHM 2045 or CHM 2095 and CHM 2046 or CHM 2096, or equivalent, or with instructor permission. There are no co-requisites.
- 3. Course Objectives:** This course is to provide students an overview of status quo and future direction of the engineering bioproducts from renewable resources. Topics are selected to cover the fundamental understanding, conversion technologies, and practical applications from renewable biomass to energy, fuel, materials, and chemicals. The students should gain knowledge about fundamental principles of bioproducts from renewable resources and also gain basic skills to further work in such areas as biorefinery and bioproducts.
- 4. Relationship of course to ABET program outcomes:** Not applicable.
- 5. Instructor:** Zhaohui Tong
 - a. Office location: 103 Rogers Hall
 - b. Telephone: 352-392-1864 x 103
 - c. E-mail address: ztong@ufl.edu
 - d. Web site:
 - e. Office hours: by appointment (8AM-5PM, M-F)
- 6. Teaching Assistant:** Hanxi Bao
- 7. Meeting Times:** 8:30am-9: 20am (T) and 8:30am-10: 25pm (R)
- 8. Class/Laboratory Schedule:** two labs have been scheduled.
- 9. Meeting Location:** 211 Rogers Hall
- 10. Material and Supply Fees:** none
- 11. Textbooks Required:**

Title: Biomass as a Sustainable Energy Source from the Future: Fundamentals of Conversion Processes

Editor(s): Wiebren de Jong & J. Ruud van Ommen

Publication date: 2014

Edition: First edition

ISBN: 978-1-118-30491-4

Publisher(s): John Wiley & Sons, Inc.,

12. Reference books:

Title: Principles of Polymer Systems

Editors(s): Ferdinand Rodriguez, Claude Cohen, Christopher K. Ober, and Lynder A. Archer

Publication date: 1996

Edition: fifth editions

ISBN: 1-56032-939-4

Publisher(s): Taylor & Francis Books. Inc.

This reference book is available at UF ONLINE and from the instructor.

13. Course Outline (tentative):

	Week
Biorefinery and biobased products overview	1
Biomass properties, characterization, and compositions	2
Fundamental principles for biomass conversion processes	3-4
Energy and fuels from biomass	4-9
Chemicals from biomass	9
Midterm Exam	10
Materials from biomass	11-14
Class project presentation	14
Final exam	15

14. Attendance and Expectations: Attendance is required. It is vital to class participation and in-class discussion. Any tardiness or early departure from class of 10 minutes will be figured as a half absence. Five absences will result in losing the grading for *Attendance* of 5%. Greater than five absences will result in the next lower letter grade. Excused absences are consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.

15. Grading:

Grading Scale

A 90-100% B 80-89% C 70-79% D 60-69% E < 60%

Grading Method

<u>Grading Method</u>	<u>Percentage</u>
Attendance	5%
Homework	20%
Course Project	20%
Lab Reports	10%
Midterm Exam	20%
Final Exam	25%

In order to graduate, students must have an overall GPA of 3.0 or better (B grade or better). Both grade and attendance items, as well as general items, are addressed at

<http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#attendance> .

16. Exam: There are two formal exams for this course.

- 17. Honesty Policy** – All students admitted to the University of Florida have signed a statement of academic honesty committing them to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.
- 18. Accommodation for Students with Disabilities** – Students requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.
- 19. UF Counseling Services** – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
- University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
 - SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling.
 - Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.
 - Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.
- 20. Software Use** – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.