

**ABE 4655C/6654C**  
**BIOBASED PRODUCTS FROM RENEWABLE RESOURCES**  
**Fall 2021**

**Instructor**

Zhaohui Tong

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Classroom: Frazier Rogers Hall Room 211

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Office Hours: by appointment via email/virtually

Meeting time: 8:30 – 10:25am, period 2 & 3

**Textbook or Reference Text (Not Required)**

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.,

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.

**Course Description**

***Credits: 3***

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.

Departmental or engineering elective credit (offered Fall) (chemical engineering minor)

## Course Pre-Requisites / Co-Requisites

It is recommended that the students have a basic background in general chemistry. The topics of this interdisciplinary course take into consideration that students will be coming to the class from varied backgrounds. Proper background materials will be provided when needed.

## Course Objectives

After taking this course, students will be able to:

- Understand an overview of status quo and future direction of the engineering bioproducts from renewable resources.
- Gain knowledge on the fundamental principles for biomass conversion processes.
- Understand practical applications from renewable biomass to energy, fuel, materials, and chemicals.
- Develop teamwork and presentation skills to solve practical problems related to biomass conversion processes

## Course Schedule

**Class Meeting Time:** MWF, period 2/3, \*8:30-10:25am (zoom-in/in class), check Canvas or email for the link, classroom, and meeting time.

Module 1: Biorefinery and biobased products overview

Module 2: Biomass properties, characterization, and compositions

Module 3: Basic Principles of biomass conversion processing

Module 4: Energy and fuels from renewable resources 1

Module 5: Energy and fuels from renewable resources 2

Module 6: Energy and fuels from renewable resources 3

Module 7: Energy and fuels from renewable resources 4

Module 8: Biobased materials 1

Module 9: Biobased materials 2

Module 10: Biomaterials overview

Module 11: Materials and chemicals from renewable resources 1

Module 12: Materials and chemicals from renewable resources 2

Module 13: Course project

- **Class attendance will be recorded each week for a student's weekly grade. Attendance will be 5% of your final grade.**
- Using notes, reports, or exam materials from previous offering of this course is considered cheating.
- No late exams are accepted except in university excused absences. Late assignments (for projects and homework) start with 5% deduction after the due date/time (usually on Monday) and then this 10% deduction continues until 8:35 for the next class meeting (usually a Wednesday). Then 20% deduction continues until 8:35am on the next class date (usually a Friday), then 30% deduction until 8:35am on the next class date (usually a Monday). No late

homework beyond the third missed class (usually one week from the due day) will be accepted unless arranged with the leading instructor.

### Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Homework of 4 sets	100	20%
Term Presentation	100	15%
Quiz (3 sets)	100	15%
Midterm Exam	100	20%
Final Exam	100	25%
Attendance	100	5%
		100%

### Grading Policy

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

**\*Please Note: THERE ARE NO MAKE-UPS ALLOWED FOR face-to face exams.** Requirements for class attendance and assignments are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

### Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

## **Course Evaluation**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

## **University Honesty Policy**

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

## **Commitment to a Safe and Inclusive Learning Environment**

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, [rbielling@eng.ufl.edu](mailto:rbielling@eng.ufl.edu)
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto:taylor@eng.ufl.edu)
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, [nishida@eng.ufl.edu](mailto:nishida@eng.ufl.edu)

## **Software Use**

All faculty, staff, and students 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.

## **Student Privacy**

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

## **Campus Resources:**

### *Health and Wellness*

- You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email [covid@shcc.ufl.edu](mailto:covid@shcc.ufl.edu)) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.

### **U Matter, We Care:**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

**Counseling and Wellness Center:** <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

### **Sexual Discrimination, Harassment, Assault, or Violence**

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, [title-ix@ufl.edu](mailto:title-ix@ufl.edu)

**Sexual Assault Recovery Services (SARS)**

Student Health Care Center, 392-1161.

**University Police Department** at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

***Academic Resources***

**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

**Library Support**, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center**, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

**Writing Studio, 302 Tigert Hall**, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

**Student Complaints Campus**: [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

**On-Line Students Complaints**: <http://www.distance.ufl.edu/student-complaint-process>