Why Biorefining at UGA?

The University of Georgia combines academic excellence, a worldclass research faculty and state of the art facilities together with a myriad of federal, state and industrial partners to create a leading-edge engineering program in the field of biorefinery engineering.

The UGA Faculty of Engineering provides the platform for a network of scientists to flourish in research areas critical to the processes for energy, product and fuel development in a biorefinery. This new interdisclipinary academic unit uses engineering to link:

- Chemistry
- Nanotechnology
- Molecular Biology
- Forestry
- Poultry Science
- Agriculture
- Business
- Computer Science
- Physics
- Mathematics

Targeted Research Within UGA's Integrated Biorefinery Program

- Pilot scale bio-oil refining and processing
- Biodiesel production, characterization and use
- Catalytic pyrolysis/gasification of biomass
- Hydrogen production from biomass
- Atomic layer epitaxy for fuel cell development
- CO_2 as a carbon substrate for fermentation carbon sequestration technology
- Char use as a fertilizer and soil amendment
- Fermentation products from biomass
- Thermochemical biomass processing for fuels and chemicals

The University of Georgia Integrated Biorefinery is...

Investigating new uses for Georgia's biological resources and teaming with private industry to push the boundaries of research into renewable energy toward commercialization through pilot-scale demonstration

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A faciltiy incorporating decades of expertise in engineering and the biological sciences with imaginative thinking about natural resources and new energy solutions.

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FACULTY of ENGINEERING
An Interdisciplinary Approach to Engineering at The University of Georgia

The University of Georgia

Fuels
Energy
Products
Chemicals

The University of Georgia

BIOREFINING & CARBON CYCLING PROGRAM

The University of Georgia Biorefining and Carbon Cycling Program

What is a Biorefinery?

A biorefinery is a facility that integrates biomass conversion processes and equipment to

- produce fuels, energy, and products from biomass
- meet state and national energy and security needs
- counter negative effects of carbon based energy sources

Industrial biorefineries have been identified as the most promising route to the creation of a new domestic biobased industry.

What is Carbon Cycling?

Carbon cycling is recycling of the carbon used in agricultural and industrial processes which

- greatly reduces the amount of CO_2 released into the atmosphere
- provides an economic value to the carbon as a value added product
- creates additional value in the form of tradeable carbon credits

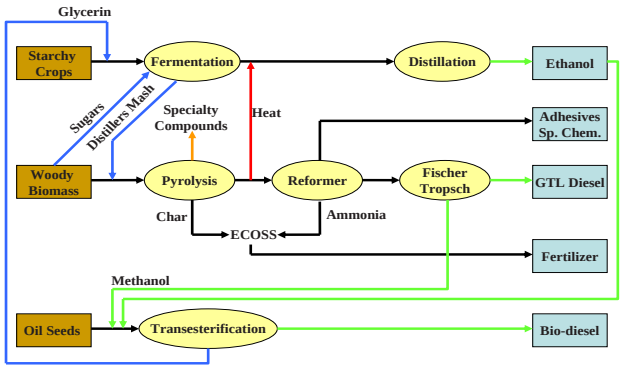
What's Happening at UGA?

The University of Georgia is a national leader in biomass research & development. Today UGA is developing novel bioenergy technologies and finding new fuel and energy sources for Georgia, the Southeast's largest producer of biomass.

The UGA Integrated Biorefinery presents a multifaceted approach to biomass conversion, via a complete systems approach that includes:

- Pilot scale bio-oil, hydrogen and char fertilizer production units
- Laboratory development of biofuels, bio-based chemicals and products
- Thermochemical process streams for fuels, chemicals and products
- Development of enzymatic bioprocessing systems

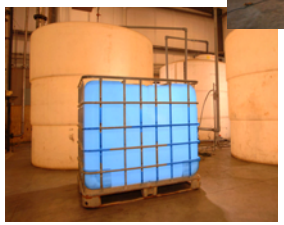
The Integrated Biorefinery Process



The UGA Integrated Biorefinery Research Program creates links from **classroom education...**

.... to basic and applied research ...

... to technology development, transfer and commercialization.



New technology developed at UGA has the potential to rejuvenate a shrinking forest products industry by creating new markets for existing forest and agricultural products and byproducts.

UGA's Biorefining and Carbon Cycling Program is engineering solutions today to meet the challenges of tomorrow.

For more information visit the UGA Biorefining & Carbon Cycling Program at www.biorefinery.uga.edu