Programs at the University of Georgia
And Possible Linkages

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http://cmbe.engr.uga.edu/publications.html
State: Georgia  
Population: 10.0 million (2013)  
Area: 154,000 km²  
Largest city: Atlanta  
Metro. Population: 5.5 million (2013)  
GSP: US$403B

State: Tamilnadu  
Population: 72.1 million (2011)  
Area: 130,000 km²  
Largest city: Chennai  
Atlanta is Global Headquarters for:

- The Coca-Cola Company ($47 billion)
- Delta ($38 billion)
- The Home Depot ($79 billion)
- Cox Enterprises ($15 billion)
- Newell Rubbermaid ($6 billion)
- UPS ($54 billion)
- AT&T ($70 billion)

Notable facts:

- Founded in 1836; 1850 population of 2,500
- Gross “domestic” product of $270 billion (ranks 17th among world metropolitan areas)
- 47% of adults have college degrees (U.S. average = 27%)

University of Georgia
Peaches

Blueberries
Pecans

Peanuts
The University of Georgia:  
*A National Leader in Education, Research and Outreach*

2,900 Highly Trained Faculty

Large and Diverse Student Body
- 34,500 Students
  - Undergraduate: 26,200
  - Graduate/Professional: 8,300

Rich and Varied Degree Programs
- 18 Schools and Colleges
- Baccalaureate degrees in over 140 fields
- Master’s degrees in 137 fields
- Doctoral degrees in 96 areas
- Professional degrees in law, pharmacy and veterinary medicine
- Over 170 Study Abroad & Exchange programs
Grand Challenge Research Themes

- **Healthy Communities**: biomedical, infectious diseases, cancer, obesity, public health, behavioral sciences, food safety
- **Environmental Sustainability**: integrative conservation, ecology, climate change, forestry, marine sciences
- **Security**: global security, energy security & independence
- **Core Strengths**: genomics, carbohydrate chemistry, imaging, pharmacology, nanotechnology, computational sciences
OneHealth Initiative

Promote interdisciplinary teaching and learning, research, and outreach at the *nexus of human, animal and ecological health*

- **Foci:**
  - emerging/re-emerging infectious diseases
  - disease ecology
- **Local community and international collaborations**
Faculty of Infectious Diseases

Integrates human and animal medicine, public health, and ecological and environmental sciences

- Emerging/re-emerging infectious diseases:
  - ecology
  - modeling
  - zoonoses
  - epidemiology, tropical/parasitic/vector-borne disease

- Food and water safety:
  - agro-/bio-security
  - animal health
  - food and water-borne diseases

- Diagnostics, therapeutics:
  - biosensing
  - drug discovery
  - immunology
  - vaccines

- Nanotechnology:
  - biosensing and diagnostics
  - drug delivery
Center for Tropical and Emerging Global Diseases

Addresses diseases of poverty:
*malaria, Chagas, lymphatic filariasis, toxoplasmosis, schistosomiasis, etc.*

- Parasitology, immunology, cellular and molecular biology, biochemistry and genetics
- Vaccine, drug, genetic and public health interventions
- Funding: Bill and Melinda Gates Foundation, NIH, WHO, Burroughs Wellcome
Owens Institute for Behavioral Research

- Center for Family Research:
  
  *Divorce, parenting, violence, depression*

- Center for Research on Behavioral Health & Human Services Delivery:
  
  *Alcoholism, cancer, the elderly*

- Center for Gambling Research:
  
  *Gambling and other addictive behaviors*

- Center for Gene-Social Environment Transactions:
  
  *Genetic and epigenetic, developmental, and environmental factors related to drug abuse and risk behaviors*
Center for Food Safety

• Developing new methods for detecting, controlling and eliminating disease-causing microorganisms and their toxins.
• Providing the food industry with information that helps solve processing problems
• Developing processing solutions that provide the consumer with safe, high-quality foods
• Partnerships with major U.S. food processors
Eugene P. Odum School of Ecology

- First School of Ecology in U.S.
- Interdisciplinary: aquatic, disease, ecosystem ecology with evolutionary focus
- Land-use policy, public outreach
- Sustainability research, including built environment
Climate & Society

- Effects of climate change on natural, managed, human-built, and societal systems
- Atmospheric, land-use, water-use, ecological, socioeconomic dimensions to climate change
- Carbon cycle
- Develop adaptation, mitigation strategies, solutions, information, tools
Marine Sciences programs

• Marine chemistry, geochemistry, microbial ecology
• Ocean acoustics, saltmarsh ecology
• Marine Institute on Sapelo Island site of Georgia Coastal Ecosystems LTER
• Marine Extension Service to serve coastal commerce/communities
Center for International Trade & Security

- School of Public & International Affairs
- Nuclear nonproliferation, mitigation of trade in components of WMD
- Legal frameworks for chemical weapons nonproliferation
- Training for careers in international and homeland security
- International workshops on security (DC office)
Bioenergy Systems Research Institute

- Renewable energy for independence and security
- Integrated biorefinery to replace entire fossil fuel economy
- Agronomics, forestry, engineering, genomics, carbohydrate chemistry, microbiology, ecology
- Focus on biomass-derived energy, fuels, chemicals, materials
Bio-Imaging Research Center

- Offers MRI imaging systems for research and service use in biomedical and veterinary sciences
- fMRI, MRI, MRS, MRA, DWI, DTI, MEG, EEG
- Tissue samples, small animals, brain imaging
- Training in effective multimodality imaging
Institute for Plant Breeding, Genetics & Genomics

• Development of new crop varieties, understanding of genetics of crop traits
• Improved plant cultivars for agronomic and horticultural species important to Georgia
• MS & PhD programs in PBGG
Bioexpression & Fermentation Facility

• Core facility in Biochemistry & Molecular Biology
• Mid- to large-scale fermentation
• Downstream processing, purification, analysis
• Serves academic and industrial clients
• Flexible project design
Masters in Biomanufacturing & Bioprocessing

- Professional science masters program
- Train mid-management biotechnology leaders for biotechnology, pharmaceutical, bioenergy industries
- Collaboration with Community Colleges
- Industrial internships part of training
- State-of-the-art process equipment
Complex Carbohydrate Research Center

- Internationally recognized
- Biomedical glycoscience, plant and microbial glycoscience, synthetic and analytical chemistry
- Instrumentation-intensive research projects
- Strong analytical facilities
- Cross-disciplinary efforts in cancer, drug discovery, bioenergy, plant molecular biology
Center for Computational Chemistry

• World-leading faculty in computational quantum chemistry, molecular mechanics
• Strong graduate program, summer undergraduate training
• Fundamental understanding of chemical structure and reactivity
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