HELP WANTED

JOBS OF THE FUTURE

By Stacey Shackford

What will drive the jobs of the future? According to the nonprofit research group Institute for the Future (IFTF), global connectivity, smart machines, and new media are just some of the things that will reshape how we think about work and the skills we will need to be productive contributors.

EXTREME LONGEVITY

There are 78 million baby boomers—defined by the U.S. Census Bureau as those born between 1946 and 1965—in the United States. They began reaching the retirement age of 65 last year, and 10,000 more will reach that milestone every day for the next 18 years. Boomers will increasingly demand opportunities, products, and medical services to accommodate healthy and active senior years. Many of these seniors have at least one chronic health condition, which they are trying to control through fortified foods or dietary supplements. Products to prevent the loss of muscle mass and maintain mental alertness are also predicted to grow in popularity, creating many opportunities for food scientists and nutritionists. As baby boomers age, their palates will change, so flavor experts will likely be in high demand. Faculty and students in the Division of Nutritional Science work closely with colleagues in Microbiology, Molecular Biology and Genetics, Neurobiology and Behavior, and even Animal Science, to understand the intricacies of human health. The Department of Food Science is a leader in the field; its students are highly sought after by companies around the world, and many participate in national product development competitions before they even leave Cornell.

COMPUTATIONAL WORLD

As the IFTF notes, “the diffusion of sensors, communications and processing power into everyday objects and environments will unleash an unprecedented torrent of data and the opportunity to see patterns and design systems on a scale never before possible.” The ability to parse and manipulate this data will be essential. In the Department of Biological Statistics and Computational Biology, data scientists create models, both micro and macro, to uncover new patterns and relationships in science and social systems, shedding light on processes from evolution to global pandemics.

NEW-MEDIA ECOCOLOGY

New technologies are transforming the way we communicate; they are already influencing the ways we construct and manage our identities, as well as the ways we interact in individual and group contexts. Media literacy has also taken on a new urgency, as our sensibility toward truth and reality is being altered by new media. Every sector of the population is becoming more savvy when it comes to
computers and other gadgets. Physical limitations may require some adaptive technologies for the aging baby boomers, while the popularity of mobile devices among children presents new opportunities to encourage healthy behaviors. In the Department of Communication, social scientists are investigating new-media dynamics, and students are already working closely with faculty in the Interaction Design and Social Media labs to develop new ways to harness the potential of mobile technology.

GLOBALLY CONNECTED WORLD
Increased global interconnectivity is leading nations to reach beyond their borders when it comes to business and politics, and rapidly growing populations will present new development challenges. At the Dyson School of Applied Economics and Management, experts analyze the impacts of economic networks in emerging markets around the world, as well as in our own backyards. In the Department of Development Sociology, students are learning how to analyze new empirical realities and historical trends and advocate for a future that encourages equality of opportunity for all.

CHANGING CLIMATE
Changes to the global ecosystem—both subtle and dramatic—will require careful management of natural resources and innovative environmental remediation. Urban ecologists, engineers, and planners will be in high demand, as will extreme weather experts. Plant scientists, breeders, pathologists, and entomologists will be called upon to respond to shifting growing zones and invasive pests and diseases. Solutions to climate change and food security are being approached by many departments across the college, including Biological and Environmental Engineering, Crop and Soil Sciences, Earth and Atmospheric Sciences, Ecology and Evolutionary Biology, Entomology, Horticulture, Landscape Architecture, Natural Resources, Plant Biology, Plant Breeding and Genetics, and Plant Pathology and Plant-Microbe Biology.

SKILLS OF THE FUTURE
In addition to scientific learning, technical training and hands-on experience, employers are placing an increased value on “soft skills.” The top-ranked soft skill employers consistently identify is communication, but many other soft skills are rising in importance. These include critical thinking, insight, and analysis; social intelligence and cross-cultural competency; the ability to collaborate and work in groups; a design mindset that approaches every problem as a design problem; and new-media literacy.

The Institute for the Future advocates for the integration of interdisciplinary training that allows students to develop skills and knowledge in a range of subjects, an objective embraced by the College of Agriculture and Life Sciences (CALS).

Over the past decade, the CALS curriculum has evolved to meet the emerging interests of its students and needs of employers, according to Donald Viands, associate dean and director of CALS Academic Programs. Many majors have internships embedded in their programs, and several have created capstone experiences to integrate student learning with real-world issues.

“All of our new majors developed in the last decade have been interdisciplinary, and CALS created a policy where students could double major and/or minor in other subjects to broaden their education,” Viands said.

For example, the agricultural sciences major was created to provide a broad, interdisciplinary education for students interested in agricultural production, from organic farming to international development. It provides a flexible curriculum that students can tailor to their interests and career goals, Viands said. The major has become incredibly popular, growing from 16 students to 94 within six years.

A major in environmental science and sustainability, created by merging science of natural and environmental systems and natural resources, is tailored to students interested in environmental biology, applied ecology, environmental policy and governance, environmental and resource economics, and biogeochemical sciences. Plant Sciences has also created new concentrations that are no longer disciplinary or departmental, addressing modern issues such as plant and human health.

Classes such as Leadership Development in the Life Sciences (ALS 3100) aim to provide the type of professional development skills that teach aspiring scientists to manage other people, as well as their own careers. New cross-college offerings through the Dyson School can also train them to manage their finances and be successful business leaders.

Programs such as BOLD—Business Opportunities in Leadership and Diversity—also seek to transform undergraduates into ethical leaders who promote inclusion and sustainability. BOLD promotes strong communication skills, personal awareness, and emotional intelligence as well as practical seminars and workshops on topics like global business etiquette.

According to the U.S. Bureau of Labor Statistics, the following CALS-related careers are projected to be in demand over the next decade:

- Accountants and auditors
- Biotechnology experts
- Biochemists and biophysicists
- Biomedical engineers
- Computer systems designers
- Computer and mathematical scientists
- Medical scientists
- Scientific and technical consultants
- Survey researchers
- Urban architects and engineers