

State's best fields likely to get even better

Work in biotech, health, and others expected to just keep on expanding

By Ron DePasquale, Globe Correspondent | January 7, 2007

The bedrocks of Massachusetts' economy -- biotechnology, healthcare, computer technology, and financial services -- are all slated to become even bigger job generators in the near future. They offer a wide range of employment, good pay, and, surprisingly, job security.

- Getting some of these crack jobs is not easy; they demand specialized training and often advanced degrees. But for young learners or mid-careerists seeking a change, there are a few large openings into these industries that don't require another lifetime of learning or a mountain of debt.

Biochemists and biomedical engineers oversee the daily research and development of new drugs and medical devices. They typically need doctorates in biochemistry or biomedical engineering. The need for biomedical engineers will grow "much faster than average," according to the federal Bureau of Labor Statistics. The median salary for a biomedical engineer in Massachusetts, according to bureau data, is \$86,010; for a biochemist it's \$91,840.

UMass-Boston offers six fellowships for biology doctoral students to teach as graduate assistants; tuition is free and a stipend of \$21,500 is given (financial need is considered).

A four-year bachelor's degree in biology-related fields is enough to run lab equipment or collect and process data as a biotechnologist. They might supervise biotechnicians, who can get hired with an associate's degree. They earn a median salary of \$45,610 here, according to the bureau.

Some community colleges now offer biotechnology associate's degrees, including Middlesex Community College and Springfield Technical Community College.

For college grads who lack science degrees or stellar science grades, post-baccalaureate programs and graduate certificates offer a way into grad school or to explore a new field without committing. Financial aid is available, and credits can often be applied toward master's degrees.

UMass-Lowell alone offers 52 graduate certificates, from alternative energy to gerontological nursing. Graduate certificates often entail four or five courses (they can be done part time); post-baccalaureate certificates can be more. A post-baccalaureate master's program begins with extra classes that are part of a master's degree. High demand for mid-level, skilled healthcare workers make these programs especially attractive. Some require an undergrad grade-point average of 3.0 to 3.3.

Tufts University, Boston University, Brandeis University, and Harvard University Extension School offer post-baccalaureate premed programs, while Northeastern University, Tufts University, UMass-Lowell, and UMass-Boston offer biotech

graduate certificates. Rates per credit are usually around the same as those for master's degrees.

Computer support specialists earn a median salary of \$55,170 in the state, according to the bureau, which predicts above-average job growth through 2014 in the field. A bachelor's in computer science engineering or information technology is enough, and some jobs require only an associate's degree. Continuing education is needed to stay current. Employers often pay for specialized certification courses that bring higher pay.

Computer system analysts, systems developers, or systems engineers improve or replace computer systems. They might supervise computer programmers, and at IT companies they can accompany sales reps. These jobs, too, are expected to grow at above-average rates; median salary is \$73,260. At least a bachelor's in computer science, IT, or management information systems is generally needed.

Sales is one area of high tech where you may not need a specialized degree, although knowledge of the material will certainly provide an advantage over novices. High-tech sales reps or sales engineers can start out in a variety of sales support, customer service and technical jobs and can have engineering, business, or even liberal arts degrees. A life sciences degree, however, is normally needed for biotech sales.

IT sales reps don't always need to have IT or computer science degrees, especially if they work alongside a technical expert. Aspiring reps could start out in sales support or customer service. In Massachusetts, sales engineers earn a median salary of \$86,920.

A robust field that mixes two of Massachusetts' economic strengths is healthcare information systems. This field has grown as the managed care industry and government agencies demand more detailed, secure records, and medical diagnoses and analysis increasingly becomes software-driven. It is also relatively easier to crack for those who don't have specialized degrees, or the time and money to pursue them.

Applicants for medical records and health information technicians need just a two-year associate's degree and certification for entry-level jobs. Northeastern and UMass-Lowell offer graduate certificates in healthcare informatics. Senior technicians can specialize in Medicare coding, for example, or become cancer registrars, maintaining patient databases that are used by physicians and public health agencies.

They earn a median salary of \$45,610 here. Health information managers earn more.

As the population ages, the number of registered nurses will grow by a healthy 29 percent. A shortage of primary care physicians has driven demand for nurse practitioners, who provide most of the same patient care as primary care doctors. Nurse practitioners need a master's degree and must gain national certification, but they earn an average of \$75,425 in Massachusetts, according to a 2005 trade magazine survey.

Simmons College, for example, offers a three-year, full-time master's program for graduates with no nursing background, which include full-time clinical internships, for \$830 per credit, or around \$26,000 a year.

As pensions fade away and baby boomers age, the need for financial planners and advisers will grow. While they obviously must be good with money, they also need to be good listeners, to sound out basic issues worrying clients, and to gauge how much risk their clients can handle.

The national median salary is \$82,970, according to the labor statistics bureau. A bachelor's in finance, accounting, business, or economics can be enough to begin, but certifications help.

Chartered financial analysts earn an average of \$180,000, according to the Chartered Financial Analysts Institute. Suffolk, Northeastern, Merrimack College, Salem State, Bentley College, and Boston University offer certified financial planner programs. They consist of about five courses that cost at least \$700 each. A master's in finance, investment management, mathematical finance, or an MBA in finance are options, as is Suffolk University's certificate in advanced finance (five courses that cost \$3,009 each). Bridgewater State College offers a graduate certificate in finance.

The demand for accountants has grown in the wake of stricter post-Enron regulations. They earn a median salary of \$59,660 in Massachusetts. A bachelor's in accounting is enough, but certified public accountants and certified management accountants earn more.

Civil engineers also face a good future. More than a third have master's degrees, and many have specialized certificates and state licenses. In Massachusetts, civil engineers earn a median salary of \$73,330. Civil engineering technicians and technologists, who need an associate's or bachelor's in engineering technology, earn a median salary of \$43,470. The UMass-Dartmouth engineering undergrad program, ranked 36th in the nation by U.S. News & World Report, offers an accelerated transition program for Bristol Community College grads.

And as environmental regulations become more strict, more environmental engineers will be needed to help companies comply with those codes, to prevent new hazards and clean up old ones. Demand will grow "rapidly," according to the bureau; engineers now earn a median salary of \$70,940 here, while technicians earn about \$45,000.

Many schools now have environmental engineering programs; Worcester Polytechnic Institute, UMass-Lowell, and Tufts offer a combined bachelor's-master's programs in civil or environmental engineering (WPI also offers graduate and advanced certificates). UMass-Lowell offers an environmental biotechnology graduate certificate through its engineering, biology, and chemistry departments at \$456 per credit. And you can start out as a technician with a two-year degree.■