

# Bay Path University *in the News*

## Life's Work – Massachusetts Is Fertile Ground for Biotechnology Careers

Joseph Bednar January 2018 from [Healthcarenews.com](http://Healthcarenews.com)

**For college students — or career changers — seeking a career path with plenty of opportunity close to home, biotechnology in Massachusetts is certainly enjoying an enviable wave.**

For example, drug research and development — one key field in the broad world of biotech — has been surging in Massachusetts for well over a decade, and isn't slowing down, according to the annual report released in November by the Massachusetts Biotechnology Council, or MassBio.

According to that report, Massachusetts has more jobs classified as biotechnology R&D than any other state (see box on page 13), with 34,366 currently employed — a 40% increase since 2007 — barely edging out California, a state with six times the Bay State's population, and a well-defined high-tech landscape.

Meanwhile, the total number of biopharma workers in Massachusetts rose by nearly 5% in 2016, to 66,053, a 28% growth rate since 2007, which was the year former Gov. Deval Patrick launched a 10-year, \$1 billion life-sciences investment program. More recently, Gov. Charlie Baker renewed the state's commitment to the industry when he announced a five-year, \$500 million 'life sciences 2.0' initiative.

"Massachusetts is historically one of the first states that got into biotechnology, then Deval Patrick made a real financial commitment, and provided funding, to try to keep it here," said Lisa Rapp, who chairs the associate-degree Biotechnology program at Springfield Technical Community College, adding that Cambridge has long been the key hub, but biotech companies can be found throughout the Commonwealth.

Still, while the industry is growing rapidly, Rapp noted that biotechnology often is not on the radar of people considering their career options. Biotechnology encompasses a broad range of applications that use living organisms such as cells and bacteria to make useful products. Current applications of biotechnology include industrial production of pharmaceuticals such as vaccines and insulin, genetic testing, DNA fingerprinting, and genetic engineering of plants.

"I don't think many students are aware how many jobs there are in the state. There are more jobs the farther east you go, but there are absolutely jobs here too," she said, noting that research and development companies tend to cluster closer to Boston, while Western Mass. tends to be stronger with biomanufacturing.

The research and development job gains come as the state's collective pipeline of drugs is rapidly expanding. According to the MassBio report, companies headquartered in the state have 1,876 drugs in various stages of development, nearly half of which — 912 — are being tested in human trials. That's a significant increase from last year, when 1,149 drugs were in development, including 455 in human trials. Treatments for cancer, neurological disorders, and infections are among the most popular.

"There are more opportunities now than ever to get good jobs in Massachusetts," Rapp said. "The state has the highest concentration of biotechnology and pharmaceutical companies in the world."

---

*Founded in 1897 | Nonprofit | Fully Accredited*

**[baypath.edu](http://baypath.edu)**

**800.782.7284**

 **BAY PATH**  
UNIVERSITY  
FOR A CONSTANTLY CHANGING WORLD

# Bay Path University *in the News*

“We’re in the middle of a genomic revolution right now, on the cusp of this brave new world,” said Thomas Mennella, associate professor of Biology at Bay Path University, who directs the master’s program in Applied Laboratory Science & Operations, which has become a key graduate degree in the biotech world (more on that later).

“My read on the field is that no one is sure where this is going to go, but everyone believes it’s going somewhere special,” he went on. “This generation now coming out will advance that revolution, and we’re preparing them the best we can to make them as adaptable as possible and follow the flow wherever the field leads.”

## Meeting the Need

Since 2012, Rapp said, STCC has received \$375,000 in grants to enhance its Biotechnology program, and especially the cutting-edge equipment and supplies on which students learn current techniques in the biotech and pharmaceutical industries.

“Our curriculum is designed to meet the ever-expanding need for trained biotechnology personnel, she added, noting that students who complete the two-year program can apply for jobs in the biopharma industry, or may advance to four-year institutions to pursue higher degrees in biotechnology.

“The career-track associate degree is meant to lead to direct employment in the field, and then we have a transfer track for students looking to transfer to a four-year college and get a bachelor’s degree or additional education,” she told HCN. “It’s about half and half, but the last few years, there has been a little more interest in the transfer pathway.”

Bay Path’s bachelor’s-degree program has evolved over time, Mennella said, first in response to industry talk that students nationally weren’t emerging with high-tech instrumentation skills, and then — when programs morphed to emphasize those skills — that job applicants were highly technically trained, but not thinking scientifically.

“Our degree here is meant to bridge that gap, meet in the middle,” he explained. “They’re graduating with the best of both worlds.”

But he called the master’s program in Applied Laboratory Science & Operations the “cherry on top of the program,” because it sets up biotech undergrads with the tools they need to manage a lab — from project management to understanding the ethical and legal implications of their work — which, in turn, leads to some of the more lucrative and rewarding areas of their field.

“We’ve packaged four courses together as an online graduate certificate program, so even students who just want to learn how to manage a lab and manage people can take those four online courses as a graduate certificate,” he explained.

The idea, Mennella said, is to make sure graduates are as competitive as they can be, in a field that — like others in Massachusetts, from precision manufacturing to information technology — often has more job opportunities available than qualified candidates. He wants his graduates to demonstrate, within six months to a year, that they can slide into lab-management positions that, in the Bay State, pay a median salary of almost \$120,000.

# Bay Path University *in the News*

“The state is hungry for highly skilled technicians that can do the day-to-day work to keep the lab running,” he noted. “We want them geared toward the really good technical jobs in this area, but have that second [managerial] purpose in mind. We’re striking both sides of the coin.”

## **Cool, Fun — and Meaningful**

Rapp noted that many students are looking for a challenging role in medical research that doesn’t involve patient contact, and a biotechnology degree is a clear path to such a career.

“Generally, they have some underlying interest in science — they think science is cool and fun, which, of course, it is. And with laboratory jobs, they might have an interest in science and not necessarily in patient care,” she explained. “And they like the hands-on work in a laboratory setting.”

Whether working for pharmaceutical companies, developing and testing new drugs, or for bio-manufacturing companies working on medical devices, or even in a forensics lab, opportunities abound, she said.

“I feel like many students want to feel like they’re doing something meaningful here,” Rapp added. “If they’re involved in designing or testing drugs, helping some future patient, I feel that’s a message that resonates with the students — that maybe they’ll be doing a job that helps someone in some way.”

At a recent Biotechnology Career Exploration Luncheon at STCC, professors from area colleges discussed opportunities in the field, and agreed that job reports like the one from MassBio may only scratch the surface when it comes to opportunities in a field that grows more intriguing by the year.

“Biochemistry and molecular-biology principles are critical in a number of growing fields in health and technology,” said Amy Springer, lecturer and chief undergraduate advisor at UMass Amherst. “Having a fundamental knowledge in these topics provides a student with translatable skills suitable for a range of areas, including discovery research, medical diagnostics, treatments and engineering, and environmental science.”

As Mennella said, it’s a brave new world — and a story that’s only beginning to unfold.

\*\*\*