INCAP
INDIANA CAREER APPRENTICESHIP PATHWAY

FOR HIGH SCHOOLERS

LIFE SCIENCES

APPRENTICESHIP PROGRAM OCCUPATION PROFILE:

LIFE SCIENCES OPERATOR

Life Sciences Operators help manufacture life-saving medicines and vaccines by operating production equipment, preparing materials, monitoring manufacturing processes, maintaining documentation, and helping ensure products meet strict quality and safety standards. Apprentices build knowledge and technical skills through biotechnology coursework in high school, work-based learning experiences, and employer-based training in regulated manufacturing environments.

This occupation is ideal for a student who:

- Enjoys learning how science, technology, and manufacturing work together to make real-world products.
- Likes hands-on work and learning how machines, systems, and processes operate.
- Pays close attention to detail and values accuracy.
- Wants to contribute to the production of medicines and vaccines that improve and save lives.

What is the average starting hourly wage for this apprenticeship?

Starting wages vary by employer, with apprentices typically earning approximately **$16–20 per hour** during the paid, employer-based portion of the apprenticeship. During **11th and 12th grade**, students will also receive a **stipend for completing eligible work-based learning and apprenticeship activities**.

What do apprentices do during their apprenticeship?

- Operate and monitor equipment used to manufacture medicines and vaccines.
- Prepare, verify, measure, stage, and handle manufacturing materials.
- Follow safety, environmental health, emergency response, and contamination-control procedures.
- Apply Good Manufacturing Practices (GMP) to ensure product quality and comply with regulatory requirements.
- Maintain accurate records using industry-standard documentation and electronic systems.
- Troubleshoot manufacturing equipment and participate in continuous improvement activities.
- Collaborate with supervisors, quality professionals, engineers, maintenance technicians, and other manufacturing personnel.

TYPICAL SCHEDULE

What year in school do students begin this apprenticeship?

11th grade

How long does this apprenticeship last?

Three years — beginning in 11th grade and continuing through the year after high school graduation.

How is a student's time spent?

11th & 12th grade: Learn + prepare

Students complete biotechnology coursework and **150 hours of work-based learning** through their high school, CTE center, and/or approved training environment. Students build technical and employability skills through hands-on training, simulations, industry projects, and employer engagement while earning an **Indiana-recognized Credential of Value**.

Summer after 12th grade: Work + apply

After graduation, students transition to **full-time, paid employment with a life sciences employer or approved training center**, typically five days per week. This is where the majority of employer-based learning occurs. Students apply their skills in an authentic life sciences manufacturing environment while accumulating the remaining hours necessary to reach the **650 hours of work-based learning required for Indiana's Employment Honors Plus diploma seal**.

Post-grad year: Work + demonstrate

Students continue **full-time, paid employment**, typically five days per week, while completing the final year of the apprenticeship. Students demonstrate Life Sciences Operator competencies on the job and complete any remaining technical training and postsecondary coursework required by the program.

** Students must be 18 years old by graduation to begin the full-time employer-based portion of the apprenticeship; 650 total hours of work-based learning must be earned by Sept. 30 following senior year.*

What are some of the skills students learn on the job?

- Professional communication, collaboration, work ethic, and workplace readiness
- Safety, environmental health, and emergency preparedness
- Regulatory compliance, audit readiness, and risk evaluation
- Accurate documentation, data integrity, and electronic manufacturing systems
- Materials preparation, inventory tracking, and digital manufacturing systems
- Equipment setup, operation monitoring, and troubleshooting
- Workplace organization, lean manufacturing, and continuous improvement
- Critical thinking and problem-solving in manufacturing environments

What classes do students take at their high school to complete this apprenticeship?

Required biotechnology pathway courses:

- 7340 Principles of Biotechnology
- 7341 Biotech Manufacturing
- 7342 Biotech Regulatory Affairs
- 7344 Biotechnology Capstone

Courses with related skill connections (not required but could be useful in a life sciences manufacturing environment):

- Integrated Chemistry & Physics (ICP) and/or Chemistry I
- Algebra II, Geometry, Finite Math, Quantitative Reasoning, Probability and Statistics, or another applied math course
- Technical Communication, Speech, or another communications-focused course
- Spanish (if selecting a foreign language)

What credentials does a student receive when they complete this apprenticeship?

Through this apprenticeship, students will meet the key requirements for Indiana's new Employment Honors Plus diploma seal by completing at least 650 hours of work-based learning and earning a short-term Biopharmaceutical Manufacturing Certificate from Ivy Tech Community College, which provides credits toward a related associate degree program. When they complete the apprenticeship, students will earn an INCAP credential, which will be recognized by life sciences employers across Indiana as an indicator of industry experience.

If a student chooses to continue working after their apprenticeship, what jobs are they qualified for?

The Life Sciences Operator apprenticeship provides students with a strong foundation in life sciences manufacturing and prepares them to pursue positions such as:

- Manufacturing Operator
- Production Operator
- Manufacturing Technician
- Process Operator