

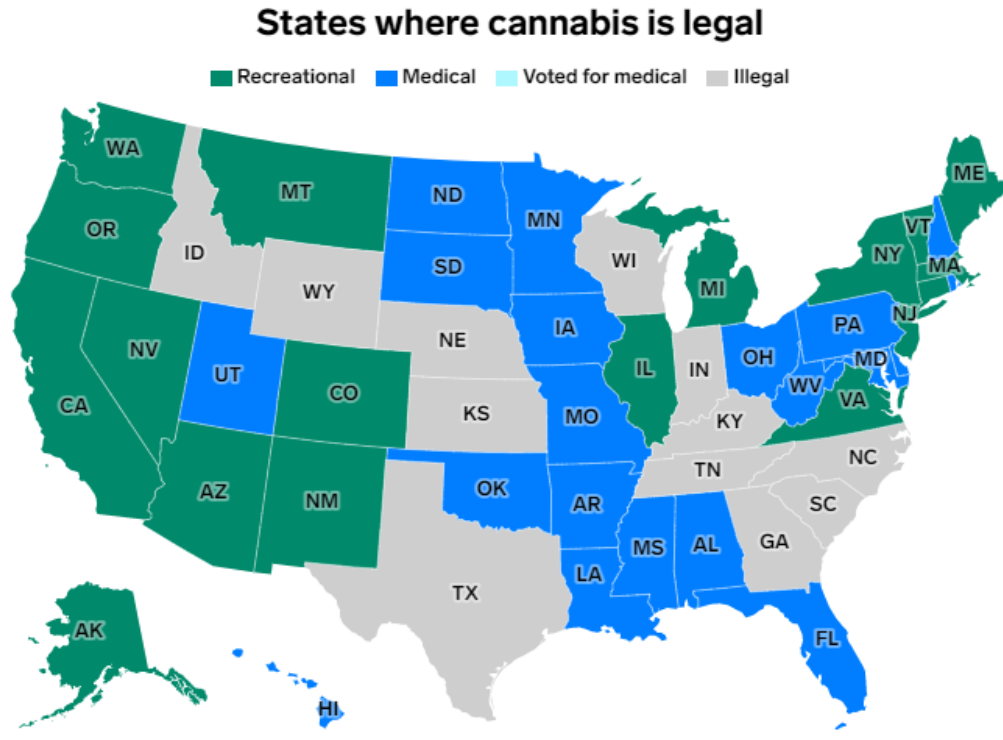
## **NATIONAL DATA:**

The national data and local data obtained during the feasibility analysis performed by the University's administrative and academic team supported the program's viability assessments and decision to offer the proposed program, BS Medicinal Plant Sciences.

We reviewed multiple reports of national data from various sources that provided additional supportive data.

- National data indicates a continued increase in legalization of cannabis, acceptance and usage as evidenced by the following data. The most recent Gallup poll from 2019 showed 12% of Americans are active cannabis users. From 2013 to 2016, the number of people who use cannabis has nearly doubled.  
(<https://news.gallup.com/poll/284135/percentage-americans-smoke-marijuana.aspx>)
- Flowhub's State of the Cannabis Industry 2020 report which showed an increase of 67% in nationwide cannabis sales from 2019 to 2020.  
(<https://www.stateofthecannabisindustry.com/>) According to a Gallup poll, support for legal marijuana is at an all-time high of 68%. Among 18 to 29-year-olds, that support rises to 79%. In 2018, 66% of all Americans supported legalization.  
(<https://news.gallup.com/poll/323582/support-legal-marijuana-inches-new-high.aspx/>)
- The Business insider report states recreational use is legal in 12 U.S. states, as depicted in Table 1.0. As of January 2021, 12 states have legalized the use of recreational cannabis (in addition to medical marijuana) for individuals over age 21: California, Alaska, Oregon, Washington, Maine, Colorado, Nevada, Vermont, Michigan, Massachusetts, Illinois, and Arizona (plus the District of Columbia).  
(<https://www.businessinsider.com/legal-marijuana-states-2018-1>)

Table 1.0

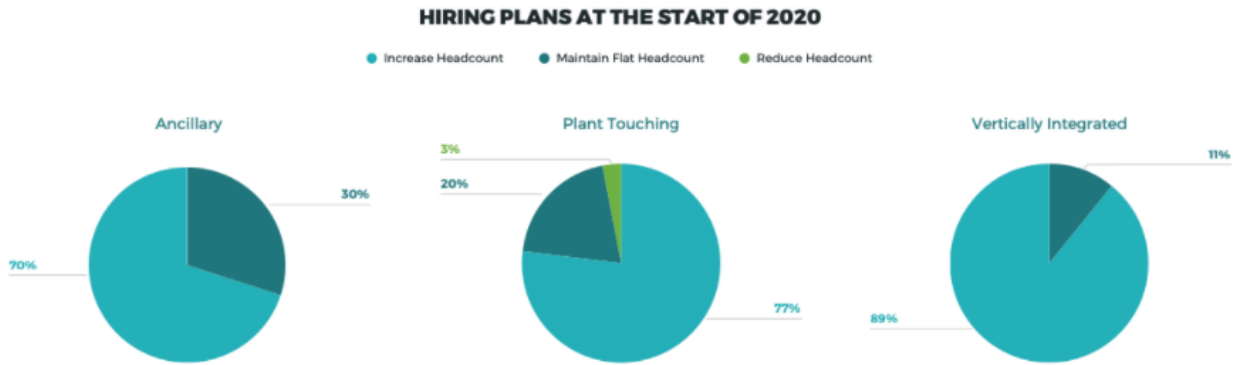


Note: Updated as of Feb. 17, 2022.

INSIDER

- The Business Insider stated the evaluation, performed by Cowen and Company, of the U.S. cannabis industry is worth \$61 billion. The U.S. cannabis industry is now projected to be worth \$100 billion USD by 2030. (<https://www.businessinsider.com/us-cannabis-market-size-projection-100-billion-by-2030-2020-12>)
- As stated in the 2020 Cannabis Industry Salary Guide from staffing agency, Vangst, found that most companies were planning to increase headcount in 2020. The pandemic caused labor shortages in every industry as well as the cannabis market. As detailed in the report and depicted in Table 1.2: 70% ancillary companies, 77% plant touching facilities and 89% vertically integrated businesses were hiring new employees. (<https://vangst.com/reports/salary-guide>)

Table 1.2



We additionally reviewed the salary report from Vangst, which noted 20,000 new cannabis jobs, in states with existing legalization, expected in 5 years. As new states enter the legal market, with it comes new cannabis workers. Vangst found that in the new legalized states, 26,000 new jobs are expected in the next five years. (<https://vangst.com/reports/salary-guide>)

It was also stated in the 2021 Leafly report, the cannabis industry added 78,000 legal, full-time jobs and saw sales rise over 70%. Leafly is the leading cannabis job study, since the Department of Labor doesn't survey the federally illegal industry. (<https://www.leafly.com/news/industry>)

According to Vangst's National survey of marijuana industry professionals, median salary for laboratory science roles year over year in 2020 (compared to 2019) are detailed in Table 1.3. (<https://vangst.com/reports/salary-guide>)

Table 1.3

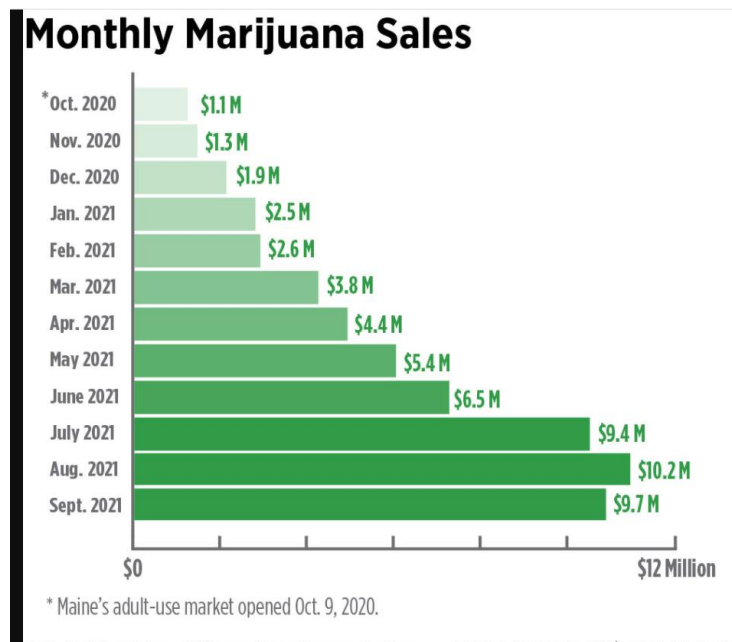
**LAB/EXTRACTION SALARIES**

	25th Percentile	50th Percentile	75th Percentile
<b>Extraction Manager</b>	\$52,000	\$65,000 (-3% YoY)	\$80,000
<b>Quality Manager</b>	\$42,750	\$55,000 (-16% YoY)	\$77,500
<b>Compliance Manager</b>	\$50,000	\$60,000 (-19% YoY)	\$75,000
<b>Extraction Technician*</b> <small>*New data for 2020</small>	\$35,000	\$37,440 (N/A)	\$40,400

The local data, within the State of Maine, obtained during the feasibility analysis performed by the University's administrative and academic team further validated the program's viability assessments and decision to offer the proposed program, BS Medicinal Plant Sciences.

According to the Office of Marijuana Policy (OMP), State of Maine, recreational cannabis monthly sales in the adult-use market have grown rapidly, as depicted in Table 1.4, since its launch on Oct. 9, 2020. <https://www.maine.gov/dafs/omp>

Table 1.4



As of October 2021, per review of the adult use dashboard of the State of Maine's Office of Marijuana Policy, cannabis concentrates and infused products such as edibles and beverages have both seen their share of the market increase, capturing 22 percent and 19 percent, respectively, compared with 14 percent and 10 percent in October 2020.

(<https://www.maine.gov/dafs/omp/open-data/adult-use>)

Due to the recent legalization of adult use cannabis in the State of Maine, this proposed program is responding to the local employer needs to fill vacancies requiring specific industry knowledge. Currently, there are no local educational institutions providing training in the fields of the proposed program.

There were no competing institutions in the local area that offer the same, or similar programs in the proposed program, BS Medicinal Plant Sciences. The following was noted from data obtained:

- There are no local colleges nor universities that offer a program that is the same in the entire State of Maine.

- It was noted during the review, cannabis training classes (basic dispensary operations, sales training, and advanced cannabis science) are available online at Hemp Staff. They offer state specific training except not for the state of Maine. These training classes were limited to 2.5 hour live and recorded webinars. (<https://www.hempstaff.com/cannabis-training-for-dispensary-jobs>)
- It was noted during the review, the American International College offers an online certificate in Cannabis Business but consists of only 3 courses and a Master of Science in Cannabis Science and Commerce graduate level program. ([www.aic.edu/lp/cannabis-science-and-commerce](http://www.aic.edu/lp/cannabis-science-and-commerce))
- The University of Maine has a Bachelors degree in Medical Laboratory Technology however it does not contain the plant science coursework. ([www.umaine.edu](http://www.umaine.edu))
- Northern Michigan University has a Bachelors degree in Medicinal Plant Chemistry. It is not offered in the 100% online delivery method therefore is not considered a competitor. ([www.nmu.edu](http://www.nmu.edu))

The absence of local available training programs, significant increases in sales and number of facilities support the assessment the employers are facing substantial labor shortage to fill vacancies in all areas of the proposed program field, BS Medicinal Plant Sciences.

## **DEMAND:**

The demand of graduates in the proposed program, BS Medicinal Plant Sciences, is supported by the statistical data regarding needs of employers, local employment outlook and earning potential for graduates and the need for training.

### **National labor market outlook:**

According to the research and national labor market reviewed, “the opening of cultivation facilities, manufacturing facilities, testing facilities, and retail stores to support the legal cannabis industry, create a significant increase in jobs from entry level to senior management. In addition to jobs that are directly involved with the marijuana supply chain, there are hundreds of ancillary jobs needed to keep the industry going. It is estimated that the legal cannabis industry employed 321,000 full-time workers across the 37 states in the United States with operational medical and/or cannabis programs as of January 2021. Of those full-time jobs, 24% (77,000) were added during 2020 showing a significant growth trend as more states launch and expand cannabis programs. (<https://www.leafly.com/news/industry>) When you add in the estimated eight to 10 ancillary businesses that are thought to support every one licensed cannabis company, the employment numbers skyrocket. Based on this data and future predictions, it’s clear that regulated cannabis markets benefit states’ economies by creating thousands or tens of thousands of new jobs.” (<https://www.cutimes.com/2021/04/28/ancillary-businesses-the-cannabis-industry-what-cus-need-to-know/?slreturn=20220120190704>)

According to ZipRecruiter, job posting for the US medical cannabis industry increased by 445% in 2017. A report from New Frontier Delta projects that by 2020 the legal cannabis market will create more than 250,000 jobs in states where medicinal marijuana is legal. Their research suggests that federal legalization would immediately create 782,000 jobs, and the firm forecasts that that

number would increase to 1.1 million jobs by 2025, including growers and retailers. <https://www.ziprecruiter.com/blog/cannabis-job-growth-tech-job-growth/>

Forbes magazine reported the legal medicinal cannabis industry is projected to grow from \$52 million in 2017 to \$2.5 billion by 2027. As of July 2019, medicinal cannabis is legal in 33 states and D.C., and many states require the product to be used in its extracted form. Other botanical products, such as essential oils, are extracted using processes and techniques similar to those used for cannabis.

**Local labor market outlook:**

The State of Maine requires all recreational cannabis product to pass strict testing guidelines and performed by a licensed third-party testing facility. This requires all producers of cannabis products to submit and pass laboratory testing before it can be sold to the retail store and thus to consumers. (<https://catlabllc.com/education/>)

According to the Office of Marijuana Policy (OMP), State of Maine. Legalization of adult use cannabis was passed by the voters in 2016. Regulations were finalized in 2020 allowing the first recreational cannabis cultivation, manufacturing, testing facilities and retail stores to open in October 2020. As of December 31, 2020 there were 39 active licenses, depicted in Table 1.5, issued by the OMP. (<https://www.maine.gov/dafs/omp>)

As of October 2021, per review of the adult use dashboard of the State of Maine's Office of Marijuana Policy, the state has 171 stores, 77 manufacturing facilities, 159 cultivation sites and two additional labs in various stages of the approval process. As of October 31, 2021, there were 410 active licenses, depicted in Table 1.5, issued by the OMP. The increase in active licenses over prior year represents a 951% increase. (<https://www.maine.gov/dafs/omp/open-data/adult-use>)

Table 1.5

<b>As of December 31, 2020</b>	<b>Active</b>
Testing Facility	1
Cultivation - Nursery	0
Cultivation - Tier 1 (Canopy)	0
Cultivation - Tier 1 (Plant Count)	0
Cultivation - Tier 2	6
Cultivation - Tier 3	7
Cultivation - Tier 4	1
Products Manufacturing	9
Store	15
<b>Total</b>	<b>39</b>
Source: Maine Office of Marijuana Policy as of 12/31/2020.	
<b>As of October 31, 2021</b>	<b>Active</b>
Testing Facility	3
Cultivation	159
Product Manufacturing	77
Store	171
<b>Total</b>	<b>410</b>
Source: Maine Office of Marijuana Policy as of 10/31/2020	

The State of Maine has experienced a significant growth of licensed cultivation, manufacturing and retail store companies since regulations were enacted in October 2020. This significant growth created a labor shortage of trained employees. Most compelling is the data noted on the State of Maine Office of Marijuana Policy licensing website, on Table 1.6, ([www.maine.gov/dafs/omp/open-data/adult-use](http://www.maine.gov/dafs/omp/open-data/adult-use)) there are 149 Cultivation, 84 manufacturing, 266 store facility and 2 testing facility licenses pending for a cumulative total of 501 new facilities expected in 2022/2023. All of these facilities will be hiring positions (such as laboratory technicians, quality control and extraction staff) that the BS in Medicinal Plant Sciences program will prepare graduates to become employed in.

Table 1.6

Adult Use Applicant and Licensee Search			
Filter by License Status:		License Type Counts: (based on filter selections)	
<input type="text" value="(Multiple values)"/>		<span style="color: red;">■</span> Cultivation 149	<span style="color: blue;">■</span> Store 266
		<span style="color: teal;">■</span> Manufacturing 84	<span style="color: orange;">■</span> Testing 2
	Status	License Location, if known	
OMPANY, LLC	Conditional	Poland, ME	<span style="color: red;">●</span>

The legalization of recreational cannabis in the State of Maine and subsequent enactment of the regulations, specifically mandatory testing, in 2020 supports providing career opportunities in the proposed program, AAS Cannabis Laboratory Sciences. Given the existing facilities facing labor shortages and the pending 501 new facilities seeking licensure, data supports enrollment in this proposed program to be sufficient to maintain long term sustainability and students will graduate and attain employment in field.

As noted on Glassdoor, as of December 2021, there are over 100 job openings in the local Maine workforce for cannabis cultivators, extraction, processors, manufacturing and retail store employees “budtenders”.  
 ([https://www.glassdoor.com/Job/maine-cannabis-jobs-SRCH\\_IL.0,5\\_IS758\\_KO6,14.htm?sortBy=date\\_desc](https://www.glassdoor.com/Job/maine-cannabis-jobs-SRCH_IL.0,5_IS758_KO6,14.htm?sortBy=date_desc))

The local labor market, employment opportunities and earning potential for graduates of the proposed program, BS Medicinal Plant Sciences, were detailed on employment recruitment site, Indeed and depicted on Table 1.7.  
 (<https://www.indeed.com/career/salaries/cannabis/ME?from=whatwhere&b=cannabis>)

- Type of companies employing: Cultivation, Manufacturing and Testing Facilities
- Job Titles: Grower, Gardener, Cultivator, Extraction, Research and Product developer/innovation, Quality Analysis Laboratory Technician, Quality Control Laboratory Technician, Compliance Laboratory Technician
- Salary range: \$42,000-\$66,000



Table 1.7

### Relevant job openings for "Plant science" in Maine

Showing 9 jobs for "plant science" in Maine

<b>Extraction Operations Managers</b> Auburn, ME • Wellness Connection of Maine \$60,000 - \$80,000 a year Full-time <a href="#">See full details</a>	<b>Extraction Operations Manager</b> Auburn, ME • Wellness Connection of Maine 2.7 ★ \$60,000 - \$80,000 a year Full-time <a href="#">See full details</a>	<b>QA Laboratory Technician</b> Portland, ME • Oakhurst Dairy 3.3 ★ \$20 - \$22 an hour Full-time <a href="#">See full details</a>
<b>QA Lab Technician</b> Portland, ME • Dairy Farmers of America, Inc. 3.2 ★ <a href="#">See full details</a>	<b>Quality Control Lab Technician</b> Kennebunk, ME • Corning 3.8 ★ \$12 - \$27 an hour Full-time <a href="#">See full details</a>	<b>Lab Technician - Kennebunk, ME</b> Kennebunk, ME • Corning 3.8 ★ <a href="#">See full details</a>

### Plant science salaries in Maine

Showing 5 salaries for "plant science" jobs

<b>Operations Manager</b> Average Salary \$58,331 per year > <a href="#">Job Openings</a> <a href="#">Skills</a>	<b>Quality Assurance Technician</b> Average Salary \$42,177 per year > <a href="#">Job Openings</a> <a href="#">Skills</a>	<b>Quality Control Lab Technician</b> Average Salary \$66,405 per year > <a href="#">Job Openings</a> <a href="#">Skills</a>
<b>Laboratory Technician</b> Average Salary \$56,530 per year > <a href="#">Job Openings</a> <a href="#">Skills</a>	<b>Safety Officer</b> Average Salary \$51,467 per year > <a href="#">Job Openings</a> <a href="#">Skills</a>	

Local employer feedback identified the need for an educational training program specific to their needs and requirements. They seek graduates prepared with the advanced foundational science and technical skills in the analyzation and cultivation and processing of medicinal plants. Specifically, to have knowledge of research and development processes, ability to implement operation, maintenance, cleaning, adjustment and repairs of laboratory equipment, ability to oversee storage of solvents, supplies and equipment and disposal of waste according to regulatory guidelines, ensure consistency and efficiency of product through performing quality control testing and procedures, ability to maintain thorough and accurate documentation of all processes and noting any changes/anomalies; and optimize efficiency, accuracy and quality of the cannabis products while ensuring full compliance regulations.

Employers, on the Program Advisory Committee, were asked to review the proposed program, BS Medicinal Plant Sciences, curriculum and provided revisions to the academic team.