

Cannabis Curricula: Two Universities Pave the Way in Graduate-Level Education

As medical cannabis policy in the United States continues to rapidly evolve, medical education struggles to catch up to legislation. To address these disparities, 2 universities are leading the way in developing graduate-level programs on medical cannabis.

University of Maryland School of Pharmacy

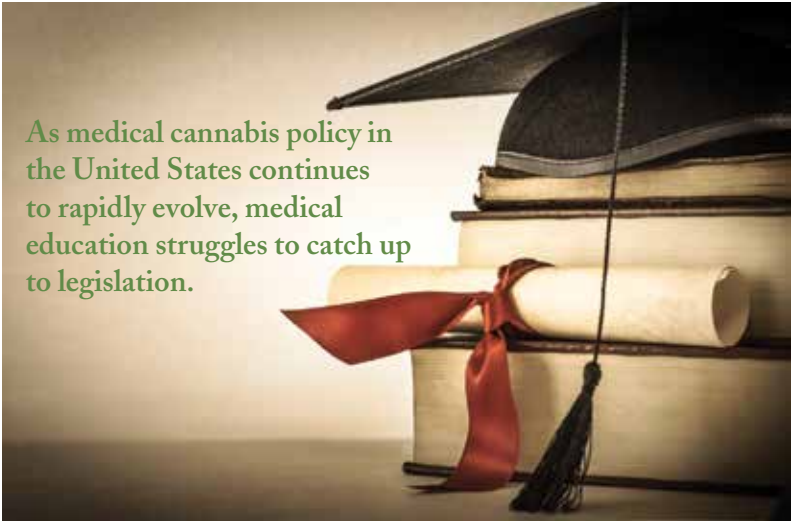
The University of Maryland School of Pharmacy in Baltimore launched the first 2-year graduate-level program on medical cannabis in the United States. The 2019–2020 inaugural class was initially set at 50 students, but after receiving more than 500 applications, the university increased the class size to 150.

The Master of Science in Medical Cannabis Science and Therapeutics program is ultimately designed to improve patient care, Program Director Leah Sera, PharmD, MA, BCPS, told the *American Journal of Endocannabinoid Medicine*.

“The comprehensive education we provide in this program will prepare students to improve patient care both directly (for those working in clinical environments) and indirectly (for those interested in research or policy development),” said Dr. Sera, who is an Assistant Professor at the university.

“We anticipate that our graduates will be able to leapfrog over entry-level positions in the industry, and we also expect that our students will be trailblazers in creating new positions in the medical cannabis field, including clinical practice, research and development, regulatory affairs, and patient advocacy,” Dr. Sera added.

Students enrolling in the program have a variety of different academic and professional backgrounds, including science, health



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care, law, and public health. “Approximately half of the students have a background in science or medicine—we have pharmacists, physicians, and nurses in the program. Other students come to us with a background in law, public health, communications, business, education, and other fields.”

The graduate program primarily involves online instruction with in-person symposia held once per semester. The curriculum includes a variety of core courses and electives (see Table). Instead of a thesis, students complete a capstone course that features a selection of expert seminars, case studies, and discussions. Dr. Sera noted that the program will be accepting another 150 students for the Fall 2020 semester.

Thomas Jefferson University

The Institute of Emerging Health Professions at Thomas Jefferson University in Philadelphia now offers 3 graduate-level certificates in cannabis education for health care and industry professionals:

1. **Cannabis Medicine:** This program is designed for clinicians seeking to incorporate medicinal cannabis into their practices and will cover pharmacologic and pathologic concepts as well as evidence-based research on disease states for which cannabinoids have demonstrated efficacy as an adjunct or replacement for conventional therapies
2. **Cannabinoid Pharmacology Certificate:** Targeting scientists and researchers, this program explores the mechanisms of drug action, and pharmacokinetics of cannabis and cannabinoids
3. **Cannabinoid Chemistry and Toxicology:** Geared toward those working in and regulating the legal cannabis industry and scientists,

Table. Curriculum for the Master’s Program in Medical Cannabis at the University of Maryland School of Pharmacy

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| Core courses | Introduction to Medical Cannabis History, Culture, and Policy |
| | Principles of Drug Action and Cannabinoid Pharmacology |
| | Basic Cannabinoid Chemistry and Drug Delivery |
| | The Clinical Effects of Medical Cannabis |
| | Negative Physical, Psychiatric, and Social Effects of Cannabis |
| | Research Design and Medical Cannabis |
| | Expert Seminars and Case Studies |
| Electives | Advanced Cannabis Therapeutics I |
| | Advanced Cannabis Therapeutics II |
| | Cannabis Genomics and Pharmacognosy |
| | Advanced Cannabinoid Chemistry and Analytic Testing Methodology |
| | State and Federal Cannabis Laws and Policies |

this program provides students with an understanding of cannabis botany and propagation, products and biological samples, and principles of quality control for cannabis-containing products

The Cannabis Medicine program is open to applicants with clinical degrees including physicians, nurses, physician assistants, and pharmacists. The other 2 programs are open to applicants with a Bachelor of Science degree. A nonmatriculation option is also available for students with a Bachelor degree in any area of study. The primarily online graduate certificates span 1 to 2 years in length and include four 3-credit courses focused on evidence-based medicine.

Certificate and CME Programs

Other universities are offering shorter certificate programs on medical cannabis. For example, the University of Vermont, in Burlington, offers a 7-week, online professional certificate in cannabis and medicine that includes education on cannabis history, business, law and policy, plant biology, biological effects on humans, production and safety, pharmacology, and clinical research. The program is designed for physicians, dispensary personnel, nurse practitioners, pharmacists, physician assistants, and regulators.

Clark University in Worcester, MA, launched the first Certificate in Regulatory Affairs for Cannabis Control in fall 2019. The online 3-course graduate-level certificate program details public

policy issues related to the cultivation, distribution, sales, and regulation of adult-use and medicinal cannabis.

Additionally, private education companies—such as Cannabis Career Institute, Cannabis Training Institute, Oaksterdam University, and The Medical Cannabis Institute—offer online continuing medical education programs on cannabis medicine for health care providers.¹

“... Our students will be trailblazers in creating new positions in the medical cannabis field, including in clinical practice, research and development, regulatory affairs, and patient advocacy.”

—Leah Sera, PharmD, MA, BCPS

Agriculture and Law

Because the field of medical cannabis closely intersects with agriculture and law, several universities are responding by creating educational programs in these areas. The University of Washington School of Medicine and The University of Southern Illinois are offering graduate-level programs on cannabis agriculture, while the University of Denver Sturm College of Law, The Ohio State University Moritz

College of Law, and Vanderbilt University offer law and policy cannabis education programs.¹

American Journal of Endocannabinoid Medicine will keep readers informed as more universities and institutes develop new programs to fill educational gaps in cannabis medicine.

Reference

1. Slaven S. The Canna(business) of higher education. Drug Enforcement Policy Center. 2019;1:1-4. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3370265

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