

# HEMP GENETICS AND BREEDING CERTIFICATE

## Program Description

With applications ranging from textiles to CBD and health foods to fuel, the hemp industry in the United States is booming. In order to keep up with the rapidly growing demand for seeds, hemp breeders and seed technicians are highly sought after, and significant growth in employment opportunities is expected to continue into the next decade.

This certificate program will cover the essential elements of starting a successful hemp breeding program. You will gain a deeper understanding of plant genetics and how they are applied to crop improvement. By combining both traditional and modern breeding techniques, you will design a plan to produce a crop with a desired combination of traits to help your plant succeed in a particular environment. From there, you will discover how to evaluate the success of a breeding trial – a process which is particularly complex when tracking and evaluating multiple traits of interest. As you gain a deeper understanding of plant intellectual property law, you will also plan how to appropriately protect your new variety. To complete your certificate, you can choose the focus area most relevant to you and your personal or professional needs, including food product development, entrepreneurship, or business management. By the completion of the program, you will have acquired a strong foundation in hemp genetics and be ready to create an effective breeding program.

Familiarity with college-level biology, plant science, and basic descriptive statistical calculations will help you be successful in this program. For the best experience in this program, it is strongly recommended to take these courses in the order that they appear.

**Note:** Cornell University, as a federally funded institution, cannot accept payment directly from cannabis companies. If you are affiliated with a cannabis business, please enroll and pay all fees as an individual. If you have questions about enrollment, please email us at [info@ecornell.com](mailto:info@ecornell.com).

## Key Takeaways

- Analyze the genetic basis for variation in plant traits and how those genes are inherited
- Apply breeding techniques and selection schemes for the development of new hemp cultivars
- Understand and apply relevant intellectual property law to the protection of new hemp cultivars

## What You'll Earn

- Hemp Genetics and Breeding Certificate from Cornell CALS
- 60 Professional Development Hours (6.0 CEUs)

## Who Should Enroll

- Horticulturists
- Agronomists
- Plant, seed, and greenhouse technicians
- Growers
- Consultants
- Seed purveyors
- Plant breeders and breeding companies

- Entrepreneurs
- CBD product developers
- Agriculture regulators

## Total Investment

3 months to complete the courses.

## How to Enroll

For more information and to enroll, please visit Hemp Genetics and Breeding Certificate (<https://ecornell.cornell.edu/certificates/food-and-plant-science/hemp-genetics-and-breeding/>).

| Code   | Title   | Hours |
|--|---|-------|
| <b>Core Courses</b>                            |   |       |
| eCornell CALS115                               | Hemp Genetics                                   | 0     |
| eCornell CALS116                               | Hemp Breeding and Selection                     | 0     |
| eCornell CALS117                               | Hemp Gene Editing and Intellectual Property     | 0     |
| <b>Food Product Development Elective Track</b> |   |       |
| eCornell CALS131                               | Market Research and Product Development         | 0     |
| eCornell CALS132                               | Food Safety and Quality                         | 0     |
| eCornell CALS133                               | Food Processing and Packaging                   | 0     |
| <b>Entrepreneurship Elective Track</b>         |   |       |
| eCornell CREA501                               | Assessing Startup Viability and Funding Options | 0     |
| eCornell CREA502                               | Pitching Your Business Opportunity              | 0     |
| eCornell CREA503                               | Protecting Your Interests                       | 0     |
| <b>Business Management Elective Track</b>      |   |       |
| eCornell JCB502                                | Finance   | 0     |
| eCornell JCB504                                | Sales   | 0     |
| eCornell JCB505                                | Marketing                                       | 0     |