

# Crop and Weed Science

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## Department Information

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- **Credential Offered:**  
B.S.
- **Official Program Curriculum:**  
[bulletin.ndsu.edu/undergraduate/program-curriculum/crop-weed-science/](http://bulletin.ndsu.edu/undergraduate/program-curriculum/crop-weed-science/) (<http://bulletin.ndsu.edu/undergraduate/program-curriculum/crop-weed-science/>)

The Crop and Weed Sciences (CWS) major in the Department of Plant Sciences is the study of grain and forage crop production, weed science, genetics, plant breeding, crop physiology and plant biotechnology. North Dakota is consistently the nation's leader for production of hard red spring wheat, durum wheat, barley, flax, dry edible beans, canola, dry peas, lentils and sunflower. North Dakota also ranks in the top 10 states for production of several other agronomic crops, including oat, rye, sugarbeet, and grass hay, and usually ranks third in total acreage of crops harvested. Income from sales of crops accounts for more than half of the North Dakota farmers' annual cash income. Crops utilized as livestock feed account for much of the cash income credited to livestock sales. Thus, North Dakota State University offers a setting well-suited for the study of crop and weed sciences.

## Career Opportunities

Usually, more employment opportunities are available in CWS than there are qualified graduates. Producers require annual inputs such as seed, fertilizers and herbicides, so they seek assistance in sales or service areas such as crop consulting, chemical application and soil testing each year. Therefore, opportunities for CWS graduates usually have been more stable than in employment areas where inputs can be deferred when income is low. Also, salaries for CWS graduates are at or near the top among all graduates in agriculture due to the high demand for agronomists by many companies.

The employment opportunities in CWS can best be summarized by the jobs that our graduates have accepted. Our graduates have been employed as crop production consultants (agronomists); marketing experts for herbicides, fertilizers and other agricultural chemicals; managers of farm service centers for cooperatives and elevators; agents in the production and marketing of certified seeds; research technicians for private companies and universities; natural resources conservationists and agents for other governmental agencies; county agricultural extension agents; field representatives for sugarbeet or food processing companies; farm managers; farm insurance agents; research associates with private plant breeding companies; and persons involved in the reclamation of strip-mined land.

Typically 10 to 15 percent of the CWS graduates at NDSU return to farming or ranching and 5 to 10 percent continue their studies to receive graduate degrees. The median starting salary for a CWS graduate with a bachelor's degree was \$45,000 with \$2,750 median bonus in 2019. In addition, many employers provide health and retirement benefits, and some provide a vehicle and cell phone.

Many employers hire undergraduate students as interns for the summer months, and some hire for spring-summer semester or summer-fall semester periods. Several faculty hire students to help with research activities, and the Department of Plant Sciences also sponsors summer interns with an expressed interest in graduate school. The opportunities for summer interns, beginning with students between their freshman and sophomore years, have exceeded the supply of students for several years. The salary for interns often exceeds the income for alternative summer jobs. An internship provides excellent work experience and often results in a graduating senior being hired earlier and with a higher salary than students without comparable experience.

## Financial Aid and Scholarships

Loans, scholarships, grants and the work-study program are available through Financial Aid and Scholarships. Students requiring assistance may contact the Office of Financial Aid and Scholarships or One Stop.

The Department of Plant Sciences awards several scholarships for use during the freshman, sophomore, junior and senior years. Additionally, scholarships are awarded to freshmen students by the College of Agriculture, Food Systems, and Natural Resources prior to enrollment. Applications for all college and departmental scholarships may be applied for online between December 1 and March 1, annually. Also, many undergraduate students are employed part-time during the school year and full-time during the summer months to assist with research or teaching activities.

## Extra-Curricular Opportunities

The department sponsors the NDSU Agronomy Club. The Agronomy Club invites industry and academic experts to speak about professional opportunities and activities at club meetings. The club also arranges trips to local agriculture businesses and arranges community outreach activities. The Agronomy Club participates in regional and national contests that involve crop production and weed science. And the club annually attends conventions to learn about several aspects of agriculture in the North Central region.

## curriculum Options

The department offers four options: agronomy, biotechnology, science and weed science. All students majoring or double majoring in CWS must meet the listed requirements. Students interested in a specific option will replace several of the elective courses listed in the sample curriculum with specific courses appropriate for that option.

- Agronomy – This option is the most popular. It deals with the technical aspects of agricultural production and management. It provides the most elective credits, which allows students to select courses that complement special interests in farming, marketing, business management, county extension work, etc.
- Biotechnology – This option is intended for students who wish to work as a technician or pursue graduate study in the crop biotechnology area.
- Science – This option deals with application of chemistry, botany, mathematics and physics to CWS. It is an excellent curriculum option for students intending to pursue a graduate degree in CWS.
- Weed Science – This option, which emphasizes proper use of herbicides and other agricultural chemicals, meets the demand for qualified personnel in marketing and application of agricultural chemicals. Also, this option provides a good background for crop production consultants (agronomists) and plant protection careers. The greatest emphasis is placed on weed control, but additional courses in entomology, plant pathology and soil science are required.

In addition, some faculty in plant sciences advise students interested in the Biotechnology and General Agriculture majors. The Biotechnology major is an interdisciplinary program that stresses basic and applied science courses and lab experience to prepare students for employment in the biotechnology industry or for graduate study. The General Agriculture program exposes students to disciplines within agriculture for careers with diverse course needs. This exposure is strengthened through selection of pertinent coursework in a minimum of four discipline areas.

## Sample Program Guide

Please note this is a sample program guide and not an official curriculum. Actual student schedules for each semester will vary depending on start year, education goals, applicable transfer credit, and course availability. Once admitted, students are encouraged to work with their assigned academic advisor on a regular basis to review degree progress.

First Year			
Fall	Credits	Spring	Credits
PLSC 189		1 SOIL 210	3
PLSC 110		3 BIOL 151	3
BIOL 150		3 BIOL 151L	1
BIOL 150L		1 ENGL 120	3
ENGL 110		3 Gen Ed Social & Behavioral Sci	3
MATH 103		3 Gen Ed Wellness	2
		<b>14</b>	<b>15</b>
Second Year			
Fall	Credits	Spring	Credits
PLSC 215		1 PLSC 225	3
PPTH 324		3 PLSC 312	1
CHEM 121		3 MICR 202	2
CHEM 121L		1 MICR 202L	1
COMM 110		3 CHEM 122	3
Gen Ed Humanities/Fine Arts & Cult Diversity		3 CHEM 122L	1
Free Elective		2 ECON 201	3
		STAT 330	3
		<b>16</b>	<b>17</b>

<b>Third Year</b>			
<b>Fall</b>	<b>Credits</b>	<b>Spring</b>	<b>Credits</b>
PLSC 320		3 PLSC 315	3
ENT 350		3 PLSC 315L	1
CHEM 240 or BOT 460		3 PLSC 323	3
Gen Ed Humanities/Fine Arts		3 SOIL 322	3
Free Elective		3 PLSC 380	3
		Free Elective	3
		<b>15</b>	<b>16</b>
<b>Fourth Year</b>			
<b>Fall</b>	<b>Credits</b>	<b>Spring</b>	<b>Credits</b>
PLSC 444		3 PLSC 455	3
PLSC upper level elective		2 PLSC 491	1
PLSC upper level elective		2 Free Elective	3
ENGL 320, 321, or 324		3 Free Elective	3
Free Elective		4 Free Elective	3
		<b>14</b>	<b>13</b>
<b>Total Credits: 120</b>			