Curricular Change in Response to Changing Demands: Experience from Saskatchewan

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At the University of Saskatchewan, the B.Sc. in Agribusiness was first offered in 2006 in response to growing demand from both students and industry for a program that provided different tools than a traditional agricultural economics degree. Following the introduction of the B.Sc. in Agribusiness degree, enrollment numbers have grown steadily, and job placements have continually been high. While this would seem to indicate that the program is meeting needs of both students and industry, recent survey data from the College of Agriculture and Bioresources suggests that there continue to be areas where the program could be improved. In this paper, we outline our learner-centered approach to curriculum innovation that led to the development of different learning pathways within the B.Sc. in Agribusiness degree. Through this process, we aimed to re-imagine what the B.Sc. in Agribusiness should look like for stakeholders in western Canada while still ensuring that the program still achieves the learning outcomes in line with those proposed by Gillespie and Bampasidou (2018).

Keywords: agribusiness, curriculum review, employer feedback, program emphasis

Introduction

At the University of Saskatchewan, the B.Sc. in Agribusiness was first offered in 2006 in response to growing demand from both students and industry for a program that provided different tools than a traditional agricultural economics degree. Following the introduction of the new degree, enrollment numbers have grown steadily, and job placements have continually been high, indicating that the program is meeting needs of both students and industry. Nonetheless, similar to other findings from around the world (Noel & Qenani, 2013; Păcurar & Cosmin 2023; Parrella et al., 2024), recent survey data from the College of Agriculture and Bioresources suggests that there continue to be areas where the program could be improved. In response to stakeholder feedback, the Department of Agricultural and Resource Economics worked to re-imagine the B.Sc. Agribusiness degree to better meet the needs of students and industry.

Innovation is a common theme in many product and service industries, and higher education is no exception. Within higher education contexts, change typically comes in the form of program review, and if required, curricular innovation. As academic programs are designed with a future state in mind, there may be times when the actual future state does not align with the program that was designed. In these cases, departments and colleges may invest in curricular changes. The reasons for change may stem from a mix of economic factors (growth or contraction), environmental factors, changes in technology that lead to a demand for newer skills and competencies, and changes in expectations among students and employers (Dooley & Roberts, 2020; Smith, 1989; Hurley & Cai, 2002). These changes may necessitate the delivery and development of new skills and capabilities among graduates to better meet the needs of industry, with soft skills continuing to gain in importance relative to more technical training (Kalyvaki et al., 2023). However, implementing these changes is no simple task, as outlined by Brown et al. (2024). All the while, departments must grapple with the internal debate within agricultural economics departments about the increasing demand for academic programs that interest students (i.e. agribusiness) at the expense of those that interest many faculty (i.e. agricultural economics). This has been outlined by Erven (1987), and this can lead to curricular innovations that are incomplete if they do not have the required faculty buy-in. Nevertheless, curriculum innovation is imperative for academic departments and universities as budgets are increasingly reliant on tuition dollars to fund the development and delivery of academic programs, requiring the provision of programs that meet demand.

In this paper, we outline our curriculum renewal in agribusiness education using a stakeholder-informed strategic planning cycle. This consisted of environmental scanning, internal alignment through curriculum mapping, and implementation through structured program pathways. In our process, we used data gathered from graduate and employer surveys to highlight areas that could be improved and tasked the undergraduate curriculum committee to suggest a path forward. That resulted in the development of concentrations within the B.Sc. in Agribusiness major to increase technical knowledge of students. At the same time, we made changes in core courses to solidify key concepts that are integral to differentiating our program from others offered in different colleges.

This paper contributes a replicable stakeholder-driven framework for curriculum renewal in applied agribusiness programs facing evolving employer demands. Program reviews and curriculum innovation are important pathways for academic departments to consider if current iterations of academic programs are meeting student and industry needs (Baker et al., 2015). Building on survey data as well as faculty

input, faculty outlined key changes that could be implemented to reposition the program for future needs of both students and industry. Through this process, we aimed to make the necessary changes to the B.Sc. in Agribusiness to meet the needs of stakeholders in western Canada while still ensuring that the program still achieves the learning outcomes in line with those proposed by Gillespie and Bampasidou (2018). In the sections that follow, we will outline the history of the B.Sc. in Agribusiness program, highlight the comments we received from former students and industry partners, and then describe the changes we implemented into our program.

Curriculum Renewal as Strategic Planning

Within an increasingly competitive undergraduate education landscape, academic programs are frequently evaluated in terms of graduate employability, career trajectories, and stakeholder satisfaction (Finley, 2021; Kitterlin-Lynch et al., 2015). These reviews can be continuous or periodic, internal and external, and be self-directed or mandated by actors outside the academic department. At the same time, these reviews can support strategic planning for departments that hope to better position themselves as providers of required job skills for an ever-changing market (Bantilan et al., 2023). In this sense, a learner-centered model, such as the one prescribed by Dolence (2004), may help departments navigate the strategic landscape.

Dolence (2004) outlined a strategic planning model that is focused on the curriculum. Dolence (2004) argues that curriculum-focused strategic planning begins with defining program-level performance indicators and learning outcomes, followed by the design of coherent learner-centered pathways aligned with diverse student goals and career outcomes. Recognizing that students may pursue differentiated professional trajectories within a major, departments can develop learner-centered pathways that support diverse career outcomes, aligning with guided pathways models that prepare students for differentiated career trajectories (Bailey et al., 2015). Supplementing this approach is data gathering in the form of survey data on student satisfaction (Garcia et al., 2024; Salim et al., 2022; Wiklund et al., 2005) and employer satisfaction with student preparation for the workforce (Finley, 2021; McDonald, 2006; Shah et al., 2015). Accordingly, we conceptualize curriculum renewal as a strategic cycle of stakeholder-informed diagnosis, curriculum alignment through mapping, and implementation through structured program pathways.

Trinkaus and Booke (1980) provide an early framework for academic program review during periods of curriculum change, emphasizing the roles of both internal and external participants and the translation of review findings into concrete action. Using both internal and external feedback helps with the strategic process as it aligns with other strategic processes, where reviews must consider both the current strengths and capabilities of the department, as well as the external threats and opportunities that are present in the market. Together, these review structures support curriculum renewal as a strategic exercise that balances internal capacity with external labor market demands.

An environmental scan is also included in the guidance by Dolence (2004). This is important as it allows for the systematic analysis of external changes that may lead to different learning outcomes required by the local market. As noted by Smith (1989), curricular change can be driven by structural change within an underlying economic industry. This is no different in Saskatchewan where agriculture is a key contributor to the Saskatchewan economy (Government of Saskatchewan, 2024). Further, as with many other locations, Saskatchewan continues to see structural change in the form of fewer and larger

farms along with continued consolidation in the agricultural sector that has been a precursor to curricular change in other locations (Arnason, 2022). In this context, environmental scanning and stakeholder feedback were central to the strategic curriculum renewal process undertaken in the University of Saskatchewan's agribusiness program.

Methods

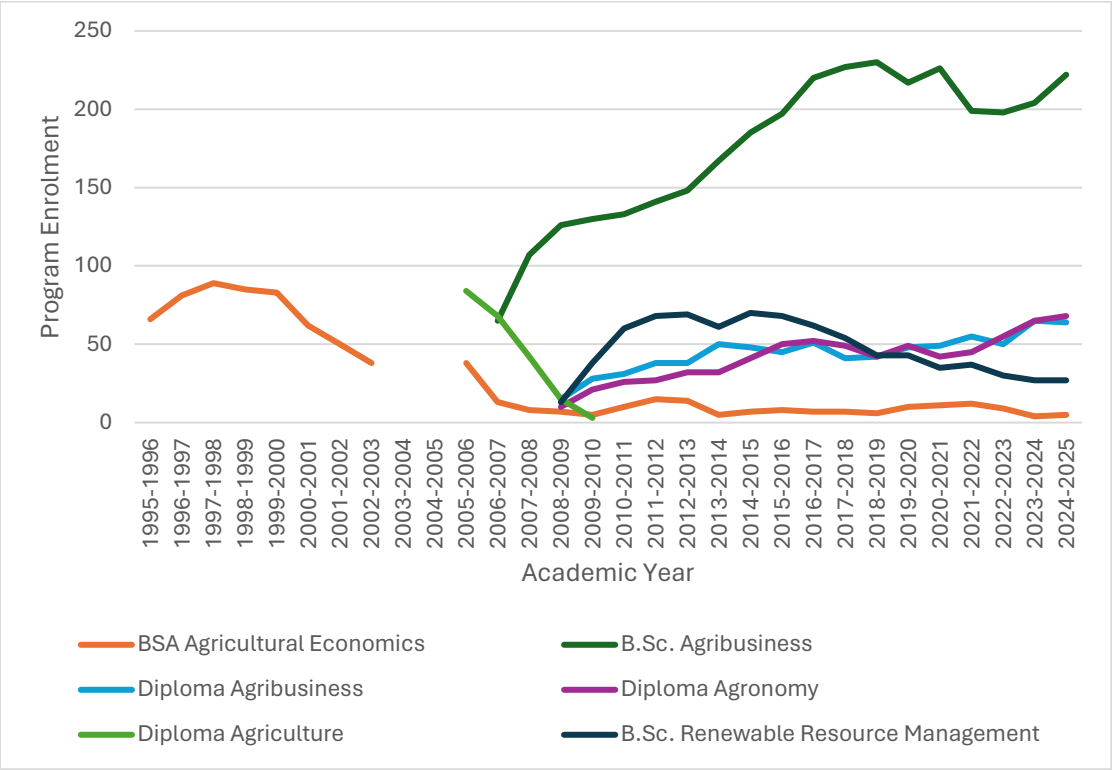
Background

The Department of Agricultural and Resource Economics at the University of Saskatchewan was first established in 1925, first offering a degree in farm management and later agricultural economics as part of the College of Agriculture and Bioresources' Bachelor of Science in Agriculture degree. The program was successful in many respects, but like many agricultural economics departments during the 1990s-2000s, the department and college experienced declining enrollment in the agricultural economics major (Figure 1), which was a strong market signal to the need to develop a new major in agribusiness (Barkley & Biere, 2001; Heiman et al., 2002).

Faced with this decline, the department and college designed and implemented the Bachelor of Science in Agribusiness (B.Sc. Agribusiness), and almost immediately, enrollment increased dramatically. As observed in Figure 1, enrollment surpassed 100 total enrolled students (over all program years) in the second year of the program, which is a level of enrollment not seen in the B.S.A. Agricultural Economics degree.

Figure 1

Enrollment changes across selected majors and minors in the College of Agriculture and Bioresources at the University of Saskatchewan, 1995-2025.



Data Sources

Since 2006, the College of Agriculture and Bioresources has worked with a local market research firm to solicit feedback from both employers and recent graduates. For the employer survey, response numbers have steadily been in the 70 range (72 in 2016 and 79 in 2021). In 2016, this amounted to a 20% response rate (University of Saskatchewan, 2016a, 2021a). No response rate was reported in the 2021 executive summary provided by the survey firm. As for the student survey, the respondent list was provided by the College of Agriculture and Bioresources, consisting of graduates from the most recent five years. In the student survey, responses and response rates were higher (2016 n = 362, 52.5% response rate; 2021 n = 698, 43% response rate) (University of Saskatchewan, 2016b, 2021b).

In the employer survey, firms who have hired graduates from the college of Agriculture and Bioresources were asked to rate their satisfaction with these employees across a range of items including their depth of knowledge in the field, their ability to work independently, their ability to communicate, and their ability to think critically and solve problems. Respondents to the survey are public and private firms in Saskatchewan who mainly operate in the areas of agribusiness and agronomy. The questions in the graduate survey mirror the questions on satisfaction with various aspects of the respondents' respective program (ability to work independently, communication, critical thinking and problem solving, etc.) while also asking questions on connection between their current employment and their program and their satisfaction with other, non-curricular components of their experience within the college. One important caveat would be that respondents were considering graduates from all programs in the college, so we do not have exact information on the satisfaction with students in the B.Sc. Agribusiness program in these areas.

Findings on General Knowledge and Skills

From the most recent survey (University of Saskatchewan, 2021a), a few areas were identified as areas where the Department of Agriculture and Bioresources could work to improve the program to eliminate gaps between employer needs of graduates and the employer rating of the skills present in recent hires from the college. Table 1 shows the trend in key items asked for in the employer survey relating to depth of knowledge and topics relating to general knowledge and skills that would be covered in many degree programs.

Table 1

Importance of General Knowledge and Skills – Average Rating of Employers

Item	2011	2016	2021
Proficiency in oral communication	4.5	4.3	4.5
Proficiency in written communication	4.4	4.1	4.3
A sound basis in appropriate natural and social sciences	3.4	3.1	3.0
Creative thinking	4.4	3.9	4.2
Data management/interpretation skills	-	3.5	3.7
Leadership skills	4.2	4.0	4.0
Mathematical skills	3.8	3.6	3.7
The ability to think critically and solve problems	4.6	4.6	4.5
The ability to work effectively in a team context	4.6	4.5	4.7
The ability to work independently	4.6	4.5	4.6
Item	**2011**	**2016**	**2021**
The ability to work with computer software applications	4.3	4.2	4.4
The knowledge of ethical, professional behavior	4.3	4.4	4.5

Note: Ratings were on five-point scale with 1 being not at all satisfied and 5 being very satisfied.

In 2011, n = 52; in 2016, n = 72; in 2021, n = 79.

Table 2 highlights the employer's level of satisfaction with these same general areas of knowledge and skills. Like many other findings elsewhere, soft skills continue to be highly valued among employers of agricultural students. The most critical issues over the past few waves of the survey include the ability to think critically and solve problems, the ability to work independently, and the ability to work effectively in a team context. The ability to communicate effectively also remains a highly sought-after skill with average ratings above 4.0 in each wave of the survey. These results are like those observed by Kalyvaki et al. (2023) and Noel and Qenani (2013).

Table 2

Satisfaction with General Knowledge and Skills -- Average Rating of Employers

Item	2011	2016	2021
Proficiency in oral communication	3.9	3.6	4.1
Proficiency in written communication	3.8	3.5	4.0
A sound basis in appropriate natural and social sciences	3.5	3.5	3.6
Creative thinking	3.6	3.6	3.8
Data management/interpretation skills	-	3.6	3.8
Leadership skills	3.5	3.5	3.7
Mathematical skills	3.5	3.7	3.7
The ability to think critically and solve problems	3.6	3.6	3.8
The ability to work effectively in a team context	4.0	3.8	4.1
The ability to work independently	3.9	3.8	4.1
The ability to work with computer software applications	4.1	4.2	4.3
The knowledge of ethical, professional behavior	4.0	3.9	4.1

Note: Ratings were on five-point scale with 1 being not at all satisfied and 5 being very satisfied.

In 2011, n = 52; in 2016, n = 72; in 2021, n = 79.

Taking the difference between importance and satisfaction, we can observe any areas where the skill is in surplus or deficit relative to the perceived level of importance by employers who responded to the survey (Table 3). When looking at the differences between satisfaction and importance, the largest deficits were observed in the areas of critical thinking, creative thinking, oral communication, as well as both team and independent work settings. Conversely, graduates appear to be meeting the needs of employers in terms of mathematical skills and data management and interpretation skills.

Table 3

Gap Between Satisfaction and Importance of Knowledge and Skills – Average Rating

Item	2011	2016	2021
The ability to think critically and solve problems	-1.0	-1.0	-0.7
The ability to work effectively in a team context	-0.6	-0.7	-0.6
The ability to work independently	-0.7	-0.7	-0.5
Proficiency in oral communication	-0.6	-0.7	-0.4
Creative thinking	-0.8	-0.3	-0.4
The knowledge of ethical, professional behavior	-0.3	-0.5	-0.4

Proficiency in written communication	-0.6	-0.6	-0.3
Leadership skills	-0.7	-0.5	-0.3
The ability to work with computer software applications	-0.2	0.0	-0.1
Mathematical skills	-0.3	0.1	0.0
Data management/interpretation skills	-	0.1	0.1
A sound basis in appropriate natural and social sciences	0.1	0.4	0.6

Note: Differences are calculated as satisfaction – importance. In 2011, n = 52; in 2016, n = 72; in 2021, n = 79.

Findings on Program Specific Knowledge and Skills

While delivery and satisfaction with soft skills is an important consideration among decision makers at the department and college level, we were also interested in how employers and former students rated their satisfaction with program-specific knowledge. Studies have found that while soft skills have consistently been shown to have the highest importance ratings in a range of study contexts (Miller et al., 2006), technical skills are critically important in specific roles such as sales and marketing (Kalyvaki et al., 2023).

As Table 4 highlights, the satisfaction with depth of knowledge of the graduate's area of specialization was only slightly above an average rating. Further examination of the responses showed that the percentage of respondents rating their satisfaction as a four or five on a 5-point scale ranged from 65% for the understanding of the business of agriculture to 43% for marketing and sales skills. Again, the caveat that these graduates may not be B.Sc. in Agribusiness students, but with the size of the program in the college, we felt this did require further examination and perhaps a reimagining of our program to provide our students with more opportunities to increase their knowledge and skills in areas that will be important to future employers.

Table 4

Employer Satisfaction with Program Specific Knowledge and Skills

Item	**2011**	**2016**	**2021**
The depth of knowledge in your area of specialization	3.4	3.6	3.6
An understanding of the business of agriculture	3.8	3.7	3.8
Marketing and sales skills	3.2	3.3	3.4
Business planning skills	3.5	3.3	3.4

Note: Ratings were on five-point scale with 1 being not at all satisfied and 5 being very satisfied.

In 2011, n = 52; in 2016, n = 72; in 2021, n = 79.

Given the resources that would be expended on making any changes to our program, we wanted to make sure that these potential shortcomings in graduates from the college were important skills from the perspective of employers. Table 5 highlights the gap in program specific knowledge and skills from the 2016 and 2021 employer surveys. One point that stood out when we looked at the data was the change in the gap from a net positive to a net negative in depth of knowledge of the area of specialization between 2016 and 2021. There are several possible reasons for this, but the nature of the survey did not allow us to examine what might have changed in the minds of employers over this time.

Table 5

Gap Between Satisfaction and Importance of Program Specific Knowledge and Skills

Item	2016	2021
The depth of knowledge in your area of specialization	0.31	-0.3
An understanding of the business of agriculture	-0.36	-0.1
Marketing and Sales Skills	0.02	-0.1
Business Planning Skills	0.06	-0.1

Note: Ratings were on five-point scale with 1 being not at all satisfied and 5 being very satisfied.

In 2016, n = 72; in 2021, n = 79.

Regardless of the reason, satisfaction with depth of knowledge was falling behind employer perceptions of the importance of this attribute, and we felt that this was something that we could attempt to rectify in the department with how we structured our program. We worked with resources on campus (Gwenna Moss Centre for Teaching and Learning) and underwent a curriculum mapping process to identify areas where we could provide better structure to our program while also giving students the opportunity (and more guidance) on how to deepen their knowledge in specific areas of agribusiness and agricultural economics. In the next section, we outline the process we undertook to review our program and discuss the development of concentrations to help students better select elective courses to meet their future needs.

Student perceptions of program specific knowledge and skills

Similar to the employer survey, every five years past graduates of the college are surveyed by the same market research firm to gather information on employment demographics. As the college wants to market itself to future students as a place to prepare for an intellectually and financially rewarding career, recent graduates are asked questions relating to current employment, the relatedness of their employment to their degree, the number and timing of job offers, as well as questions about academic advising within the college and their satisfaction and use of program specific knowledge. As in the case of the employer survey, all the degree programs within the college are represented in the graduate survey, so making decisions based on this data requires deeper dives into the numbers to ensure that opportunities identified by the data are representative of the programs under control by individual departments.

As students are both the customers and products of academic programs (once they graduate), student perceptions of how the program prepared them for their career are important pieces of information for

decision makers within academic departments (Suvedi & Heyboer, 2004). If perceived usefulness of specific knowledge and skills being covered in the program are not valued by the industry, and therefore not seen as useful by past graduates, academic programs may see reductions in demand reflected in declining enrollments which leads to the development of new majors that provide a closer fit between department offerings and industry needs that are reflected in demand for new programs. Anecdotally, we saw evidence of this within the Department of Agricultural and Resource Economics at the University of Saskatchewan in the mid-2000s, and this phenomenon has also been observed elsewhere in the academy (Heiman et al., 2002).

Table 6 summarizes the responses from recent graduates over the last four waves of the survey (University of Saskatchewan, 2021b). This is separated by all respondents and agribusiness and agricultural economics majors from the 2016 and 2021 surveys. In terms of student use of program specific knowledge, respondents have had varying levels of use of the highlighted areas from our program. Perhaps not surprisingly, respondents with degrees in agricultural economics or agribusiness had higher levels of use in all four items examined here, with three of the items having an average rating (on a five-point scale) over four in the 2021 survey. The use of business planning and marketing and sales skills has remained close to (or above) four in the two surveys conducted after 2016, which would seem to indicate that these skills are used often in the workplace.

Table 6

Student Use of Program Specific Knowledge and Skills, 2006-2021.

	All Majors			AgBus/AgEcon	
Item	**2011**	**2016**	**2021**	**2016**	**2021**
The depth of knowledge in your area of specialization	3.7	3.8	3.8	3.9	3.8
An understanding of the business of agriculture	4.0	3.8	3.8	4.5	4.5
Business planning skills	3.5	3.4	3.3	3.9	4.1
Marketing and sales skills	3.4	3.3	3.2	4.0	4.1

Note: Respondents were answering the following question: On a scale of 1 to 5, where 1 is no extent and 5 is a great extent, to what extent do you use the following knowledge and skill areas in your current job. In 2011, n = 348 (45 in Ag Econ/Agribusiness); in 2016, n = 362 (63 in Ag Econ/Agribusiness); in 2021, n = 698 (116 in Ag Econ/Agribusiness).

Similar to the employer survey, in the graduate survey respondents were also asked to rate their satisfaction with different components of their academic program (Table 7). The purpose of this question is again to match this response to the use question (reported above in Table 6) to identify any gaps in programming where satisfaction with different areas would fall below the level of use. Significant gaps (in either direction) could potentially indicate a mismatch in resource allocation within the department

and program on courses or learning outcomes within courses if concepts and skills covered are not valued in the profession (or vice versa). Table 7 summarizes student satisfaction with *the depth of knowledge in the area of specialization, an understanding of the business of agriculture, business planning skills,* and *marketing and sales skills*. Similar to the results shown in Table 6, responses from agribusiness and agricultural economics majors are higher than the pooled responses (all majors) for all items examined here except for *the depth of knowledge in your area of specialization*.

In terms of gaps between graduate reported satisfaction and use of program specific knowledge and skills, the difference between satisfaction with program areas and the use of these areas on the job are relatively small. The largest difference between satisfaction and use of program specific knowledge was for *an understanding of the business of agriculture* from the 2016 survey (Satisfaction was 4.1, use was 4.5; gap = -0.4). Satisfaction with knowledge and skills in business planning were higher than reported use in both 2016 and 2021, compared to while ratings for marketing and sales skills usage was below satisfaction over that same period.

Table 7

Student Satisfaction with Program Specific Knowledge and Skills, 2006-2021.

	All Majors			**AgBus/AgEcon**	
Item	**2011**	**2016**	**2021**	**2016**	**2021**
The depth of knowledge in your area of specialization	3.9	3.9	3.9	3.7	3.8
An understanding of the business of agriculture	3.9	3.9	3.8	4.1	4.3
Business planning skills	3.4	3.5	3.3	4.1	4.1
Marketing and sales skills	3.1	3.2	3.1	3.9	3.9

Note: Ratings were on five-point scale with 1 being not at all satisfied and 5 being very satisfied.

In 2011, n = 348 (45 in Ag Econ/Agribusiness); in 2016, n = 362 (63 in Ag Econ/Agribusiness); in 2021, n = 698 (116 in Ag Econ/Agribusiness).

Curriculum Mapping and Strategic Planning

In 2019, the department began a curriculum review based on feedback from the 2016 college survey and informal discussions with industry. For the review, in 2021 the department solicited the guidance of specialists working with the Gwenna Moss Centre for Teaching and Learning who had prior experience in curriculum mapping and program change.

Table 8

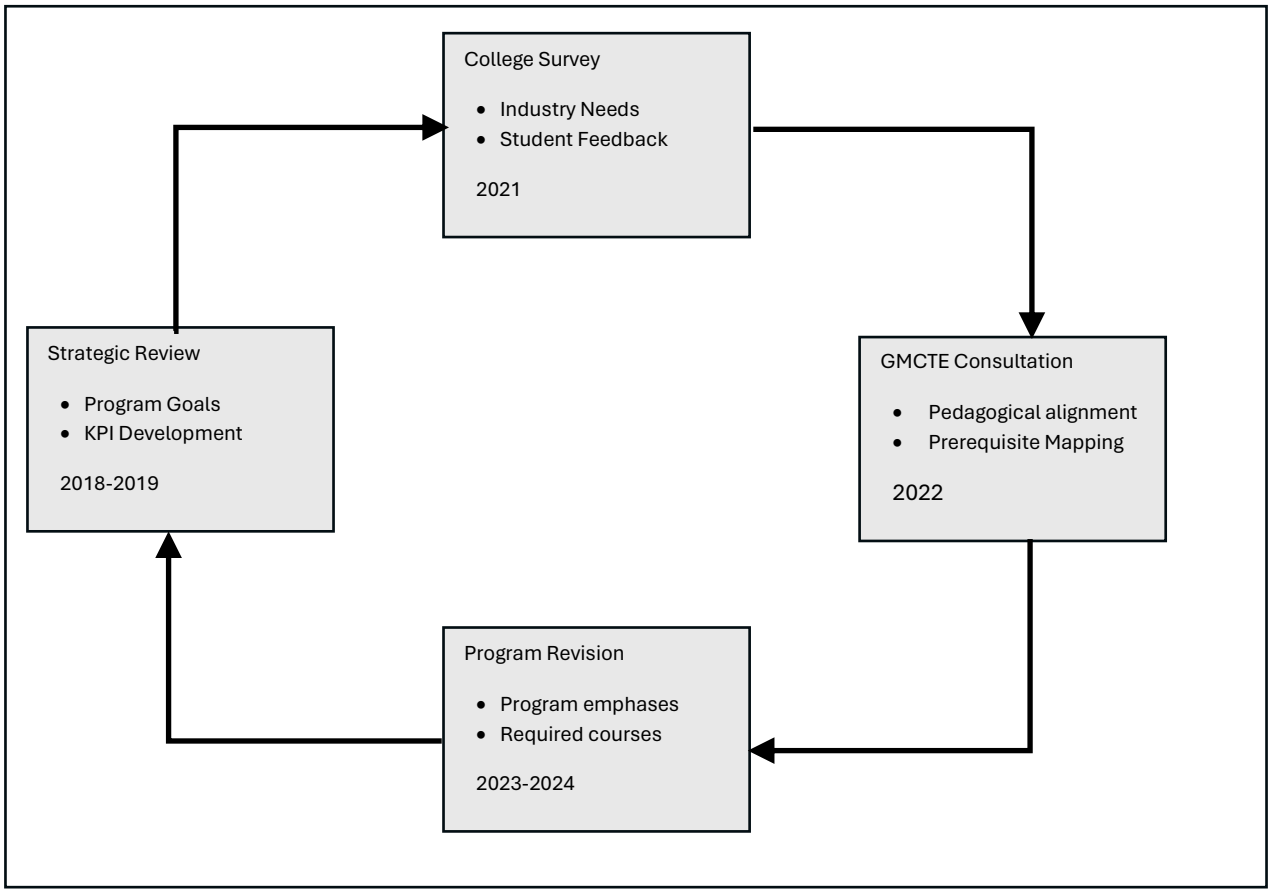
Program-Level Learning Outcomes of the B.Sc. Agribusiness Degree

Knowledge
Synthesize alternative perspectives and ideas on current agricultural issues.
Identify and apply appropriate economic tools to solving agribusiness problems.
Summarize and discuss the effects of external drivers (e.g. globalization, climate change, environmental degradation) on agribusiness.
Apply business management concepts to agribusiness decision making (e.g. economics, finance, accounting, marketing, strategy).
Technical Skills
Apply critical thinking and reasoning to issues within the agribusiness sector.
Summarize, discuss and anticipate the effects of market structure, competition, trade and market power at both the firm and industry levels.
Design appropriate marketing, selling and project management plans in different agribusiness contexts.
Decision-making based on scientific evidence, environmental responsibility, cultural awareness (e.g. investment analysis, data analysis, non-market valuation).
Use data analysis effectively for decision-making.
Develop and apply appropriate risk management strategies.
Professional Skills
Respect for others and consideration of alternative perspectives.
Demonstrate individual initiative and work ethic.
Communicate effectively.
Demonstrate integrity and incorporate ethics in professional practice.
Work effectively and demonstrate leadership in a team environment.

As part of this process, the department struck several sub-committees and tasked them with separate roles that would guide this process. In line with Dolence (2004), the department sub-committee first developed program-level learning outcomes that members of the committee (and the department) felt would be evident following the completion of the B.Sc. in Agribusiness. This process closely, but not perfectly, matched processes on developing program-level learning outcomes in other disciplines (Clark and Hsu, 2023; Dolence, 2004; Sharkey, 1990). As a result of this work, the following program-level outcomes were developed and agreed to by the faculty in 2023 (Table 8). A schematic of the entire process is shown in Figure 2.

Figure 2

Strategic review process and timeline



Following the development of the program-level learning outcomes, a curriculum mapping process was conducted to help faculty visualize how all courses fit into the greater program. This allowed faculty to see how prerequisite courses, combined with the class schedule, created bottlenecks to effective

program design and delivery. Following the creation of the program map, program restructuring in terms of timing and sequencing of courses was undertaken to provide greater opportunities for deeper learning of the courses. This was helpful as while faculty had in mind a pathway for how students 'should' complete the degree, program flexibility with respect to prerequisites (or lack thereof) led to some students choosing a degree pathway that did not match the intended pathway (Bailey et al., 2015). This lack of coherence in the degree pathway for some students can reduce program integrity as not all students in the class have the same background knowledge so the learning experience of the class can be reduced as foundational material is repeated for those who lack the prior knowledge (Reekie et al., 2023).

Development of Program Emphases

Undergraduate curricula are developed in a manner to attempt to satisfy multiple (sometimes conflicting) constraints. Depending on the profession, there may be courses that must be included for accreditation (or to help students pass professional exams). Even without accreditation, academic programs may naturally evolve to include a common set of learning outcomes and courses across institutions, facilitated by a professional association and the network of professors within the profession (Diebel et al., 2014; Gillespie & Bampasidou, 2018; Litzenberg et al., 1983). Beyond this core set of courses, there can be a significant amount of flexibility within the program.

Following the development of the program-level learning outcomes and the curriculum map, the undergraduate committee examined different pathways that could be explored to allow students to deepen their understanding in different topical areas within the agribusiness major (Bailey et al., 2015; Cannon et al., 2002). As outlined by Bailey et al. (2015), program pathways allow learners to acquire the knowledge and skills necessary to improve their prospects in their specific career pathway. The development of these emphases also aligned with data from the surveys, particularly providing clearer guidance on how specific courses can deepen subject matter understanding. Even though the data collected was from employers of all college graduates, the number of agribusiness majors and minors represented in the college suggested to the department that this data should not be ignored. The employer data provided the department with the context to see on how past graduates are performing in the workplace, and how curricular changes may improve employer satisfaction with students from our program moving forward (Parrella et al., 2024; Smalley et al., 2016; Smith, 1989).

Fitting all of this into 120 credit hours can be challenging, particularly when further considering the trade-off between an overly prescribed program where a significant percentage of curricular hours are required versus other programs that offer students more elective courses as part of their degree pathway. Considering recent feedback from both employers and former students that indicated that greater specialization of knowledge would be valued, one approach would be to change the degree to make more courses required courses. However, members of the undergraduate curriculum committee felt that programs that over-prescribe courses have their own downsides, as this approach limits the ability of the student to choose electives based on their own interests. Additionally, a more prescribed program would make scheduling courses around sabbatical leaves more difficult if more courses are treated as required courses within a program of study. Following a review of different models and the compatibility of these models with the University of Saskatchewan registrar's office, the program emphasis was determined to be the best fit for our major while responding to the issues raised in the employer and student survey. This path also somewhat aligned with the concept of specializations outlined in Gillespie and Bampasidou

(2018). While both options have merit, the program emphasis was chosen over the concentration at the University of Saskatchewan largely due to the ease in approval from a bureaucratic standpoint.

Within a program emphasis framework, students would use both their restricted and open elective courses to choose among a choice set of courses within the emphasis. To ensure that courses have sufficient depth of knowledge, there are also course level requirements that stipulate that following one introductory (200-level course), completion of the emphasis would entail the further completion of two courses at the 300-level and two courses at the 400-level.

Three program emphases were developed within the B.Sc. Agribusiness major, largely driven by observed career pathways from former students. The *Economics and Policy* emphasis was designed for students with a stronger interest in policy work following graduation, while also providing a solid foundation for those students who may be interested in graduate studies in agricultural and applied economics. The *Agribusiness Marketing and Management* emphasis provides more guidance to those students who might be interested in working in sales, marketing, or finance following the completion of their degree. Finally, the *Farm Business Management* emphasis was developed to better meet the needs of the sizable portion of B.Sc. Agribusiness students who have indicated that they would be returning to help manage (or take over) the family farm in the coming years. The specific courses included in the different program emphases are outlined in Table 9.

Table 9

Program Emphases within the B.Sc. Agribusiness Major

Economics and Policy	**Agribusiness Marketing and Management**
AREC 238.3 Natural Resource Economics	AREC 230.3 Innovation and Entrepreneurship
AREC 251.3 Introduction to Agricultural Policy	AREC 344.3 Follow the Grain
AREC 315.3 Application of Microeconomic Theory to Agriculture	AREC 346.3 Principles of Selling
AREC 348.3 Food Economics and Consumer Behavior (can be used as a 400-level restricted elective)	AREC 348.3 Food Economics and Consumer Behavior (can be used as a 400-level restricted elective)
AREC 356.3 The Economics of International Agribusiness (can be used as a 400-level restricted elective)	AREC 354.3 Economic Decision Analysis in Agribusiness
AREC 445.3 Competition Regulation and Antitrust Theory and Applications	AREC 356.3 The Economics of International Agribusiness (can be used as a 400-level restricted elective)
AREC 451.3 Agricultural Policy Analysis	AREC 420.3 Operations Management for Agriculture

AREC 459.3 The Economics of Agricultural Innovation	AREC 428.3 Case Studies in Agribusiness Management or AREC 495.3 Agribusiness Venture Management
ECON 211.3 Intermediate Microeconomics	AREC 440.3 Agricultural Marketing Systems
ECON 304.3 Introduction to Empirical Economics	COMM 205.3 Introduction to Operations Management
ECON 350.3 Economics of Public Expenditures	COMM 211.3 Human Resource Management
ECON 354.3 International Trade and Commercial Policy	COMM 306.3 Ethics and Strategic Decision Making
ECON 373.3 Topics in Intermediate Microeconomic Theory	COMM 357.3 Marketing Research
ECON 412.3 Welfare Economics and General Equilibrium	COMM 495.3 Supply Chain Management
One of POLS 226.3 Canadian Public Policy; POLS 305.3 Provincial Politics and Policy; POLS 328.3 Public Policy Analysis	RCM 404.3 Leadership as Communication
Farm Business Management	
AREC 230.3 Innovation and Entrepreneurship	
AREC 254.3 Agribusiness Taxation	
AREC 420.3 Operations Management for Agriculture	
AREC 435.3 Advanced Agricultural Finance	
AREC 451.3 Agricultural Policy Analysis	
COMM 211.3 Human Resource Management	
COMM 306.3 Ethics and Strategic Decision Making	
COMM 229.3 Personal Financial Management	

Implications

This case highlights several implications for agribusiness departments undertaking curriculum renewal. Because renewal processes require substantial investments of faculty time, institutional resources, and administrative coordination, approaches that leverage evidence and strategic planning are

particularly valuable. Systematic environmental scanning, combined with periodic graduate and employer feedback, can support both targeted program improvement and ongoing evaluation of workforce relevance. Longitudinal stakeholder data—even when drawn from an unbalanced panel—allows departments to monitor trends in perceived graduate preparedness over time and to identify areas where curricula may require deeper specialization or refreshed skill development.

A second implication is the value of external instructional and curriculum expertise to guide the process. In our case, we relied on experts from the Gwenna Moss Centre for Teaching and Learning at the University of Saskatchewan to facilitate our process and ensure we were adhering to best practices. External facilitation may help departments surface blind spots and build shared ownership. It also provides a clear and unbiased examination of the curriculum and how it meets department goals and industry needs. This also ensured that the changes proposed (and implemented) were more than incremental; these changes required significant department buy-in and followed collegial governance processes. The curriculum mapping process was important as course content can change incrementally over time, and it is only after looking back that department leaders can identify curricular drift and make more intentional decisions about sequencing, skill development, and program design.

Finally, curriculum mapping can enable implementation strategies that differentiate academic programs without requiring significant increases in credit requirements or extensive new course development. In this approach, departments can respond to employer demands for greater depth by restructuring existing offerings into concentrations, majors, or program emphases. In our case, the introduction of program emphases provided a relatively low-burden administrative mechanism for supporting differentiated career pathways while maintaining a common agribusiness core. Together, these implications suggest that curriculum renewal can be effectively conceptualized as a strategic cycle of stakeholder-informed diagnosis, internal alignment through mapping, and implementation through structured program pathways.

Conclusions

In this paper, we highlight several changes made to the B.Sc. Agribusiness degree following the initial development in 2006. Applying a learner-centered model of curriculum design, we redesigned our B.Sc. Agribusiness degree to better meet evolving workforce and professional needs of agribusiness students in Saskatchewan. Using curricular mapping along with three waves of student and employer surveys, we worked with curriculum specialists to make significant yet manageable changes to the degree. This work is important as it demonstrates department leaders that curricular innovation need not be radical to be effective.

The gathering of student and employer feedback began in 2006 and was repeated every five years. While students continue to be well placed in the job market and there is general satisfaction among employers regarding graduates from the College of Agriculture and Bioresources, it was noted that students could further strengthen professional competencies such as communication, critical thinking, and teamwork consistent with prior research (Cole & Thompson, 2002; Finley, 2021).

Survey data provided information and context to guide the curriculum innovation process that followed the mapping of our current curriculum. Given the substantial faculty time and coordination required in the mapping process, department leadership wanted to ensure these resources were used

effectively. Our process was both learner-centered (Dolence, 2004) and strategic (Bantilan et al., 2023). Following these sessions, three new program emphases were created and approved by the university.

More broadly, this case suggests that agribusiness departments can conceptualize curriculum renewal as an ongoing strategic cycle of environmental scanning, alignment through curriculum mapping, and implementation through structured pathways. As the agriculture industry continues to evolve, evident through continued consolidation, increasing technological change, and greater demand for data and professional skills, academic renewal processes will remain essential for maintaining workforce relevance in undergraduate agribusiness education. Future evaluation of emphasis uptake, graduate outcomes, and subsequent employer feedback will be important for assessing the longer-term effectiveness of this curriculum renewal model.

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