



Ontario
College of
Teachers

Ordre des
enseignantes et
des enseignants
de l'Ontario

Additional Qualification Course Guideline Teaching Green Industries - Agriculture

Schedule F Teachers' Qualifications Regulation

March 2017

Ce document est disponible en français sous le titre *Ligne directrice du cours menant à la qualification additionnelle : Technologie agricole, forestière et paysagère – Agriculture*, mars 2017.

Additional Qualification Course Guideline Teaching Green Industries – Agriculture

1. Introduction

The Schedule F *Teaching Green Industries – Agriculture* Additional Qualification course guideline provides a conceptual framework (Figure 1) for providers and instructors to develop and facilitate the Schedule F *Teaching Green Industries – Agriculture* course. This guideline framework is intended to be a fluid, holistic and integrated representation of key concepts associated with teaching green industries and agriculture.

The Additional Qualification (AQ) course guideline for *Teaching Green Industries - Agriculture* is organized using the following conceptual framework,



Figure 1: Conceptual Framework

Teachers are able to take the Additional Qualification Course: *Teaching Green Industries – Agriculture* if they hold a technological education qualification at Grades 9 and 10 or Grades 11 and 12 in the broad-based area of teaching green industries.

The Additional Qualification Course: *Teaching Green Industries – Agriculture* employs a critical, pedagogical lens to explore in a holistic and integrated manner theoretical foundations, learning theory, program planning, development and implementation, instructional design and practices, assessment and evaluation, the learning environment, research and ethical considerations related to teaching and learning across the divisions. Through these explorations, candidates strengthen professional efficacy by gaining in-depth knowledge, refining professional judgment and generating new knowledge for practice.

Teachers qualified in *Teaching Green Industries – Agriculture* facilitate active inquiry-based learning by combining knowledge of student development and learning with knowledge and understanding of subject matter, pedagogy and technological expertise. Successful candidates of this AQ will demonstrate technical proficiency in each of the technologies identified in *Part 8, Demonstrated Competence in Teaching Green Industries – Agriculture*.

AQ Course Implementation

Course providers, instructors and developers will use this AQ guideline framework to inform the emphasis given to key guideline concepts in response to candidates' diverse professional contexts, knowledge, skills and understandings.

Critical to the holistic implementation of this course is the modeling of a positive learning environment that reflects care, diversity and equity. This course supports the enhancement of professional knowledge, ethical practice, leadership and ongoing professional learning.

The Ontario College of Teachers recognizes that candidates working in the publicly funded school system, independent/private institutions or First Nations schools will have a need to explore topics and issues of particular relevance to the context in which they work or may work.

Provincial Context

The French language and the English language communities will also need to implement these guidelines to reflect the unique contextual dimensions and needs of each community. Each of these language communities will explore the guideline content from distinct perspectives and areas of emphasis. This flexibility will enable both language communities to implement *Teaching Green Industries – Agriculture* as understood from a variety of contexts.

In this document, all references to “candidates” are to teachers enrolled in the Additional Qualification course. References to “students” indicate those enrolled in school programs.

2. Professional Identity and the Image of the Learner

The professional identity of the AQ course instructor and course candidates conveyed in this AQ course guideline reflects the vision of the educator articulated in the *Ethical Standards for the Teaching Profession*, the *Standards of Practice for the Teaching Profession* and the *Professional Learning Framework for the Teaching Profession*.

This vision of the educator (Figure 2) positions professional educators as innovative scholars and practitioners, critical pedagogues who forward social and ecological justice, as well as:

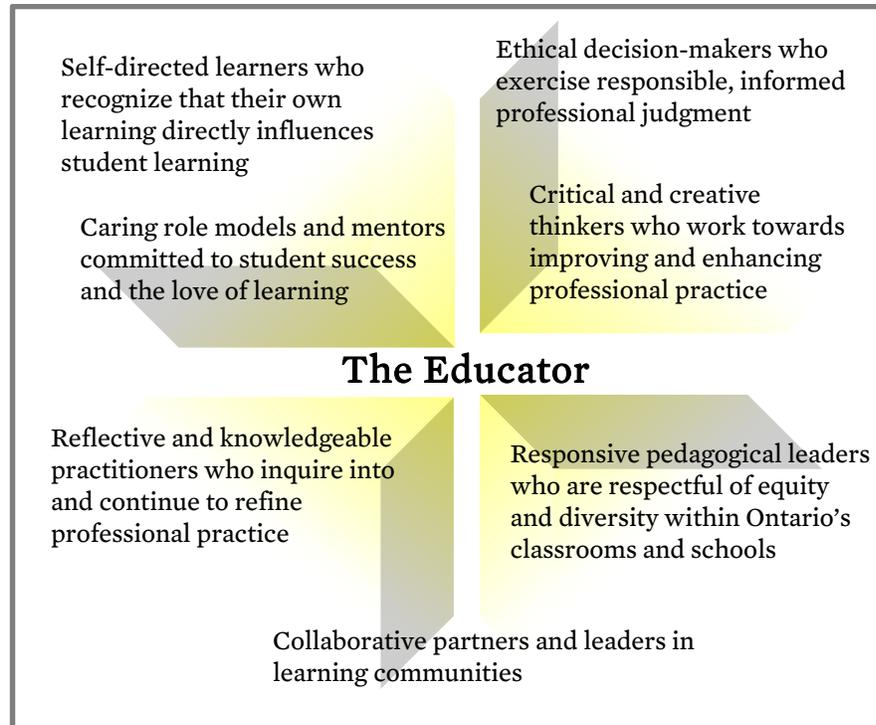


Figure 2: Image of the Educator¹

The image of the student conveyed in this AQ (Figure 3) is of a learner who is empowered, independent, a democratic citizen, knowledgeable, creative, collaborative, a critical thinker, ethical, reflective, accepting, inclusive, courageous, self-efficacious, a problem-solver, and whose voice and sense of efficacy are integral to shaping the teaching and learning process.

¹ *Note.* From “The Foundations of Professional Practice,” by Ontario College of Teachers, 2016, p. 16. Copyright 2016 by Ontario College of Teachers. Reprinted with permission.

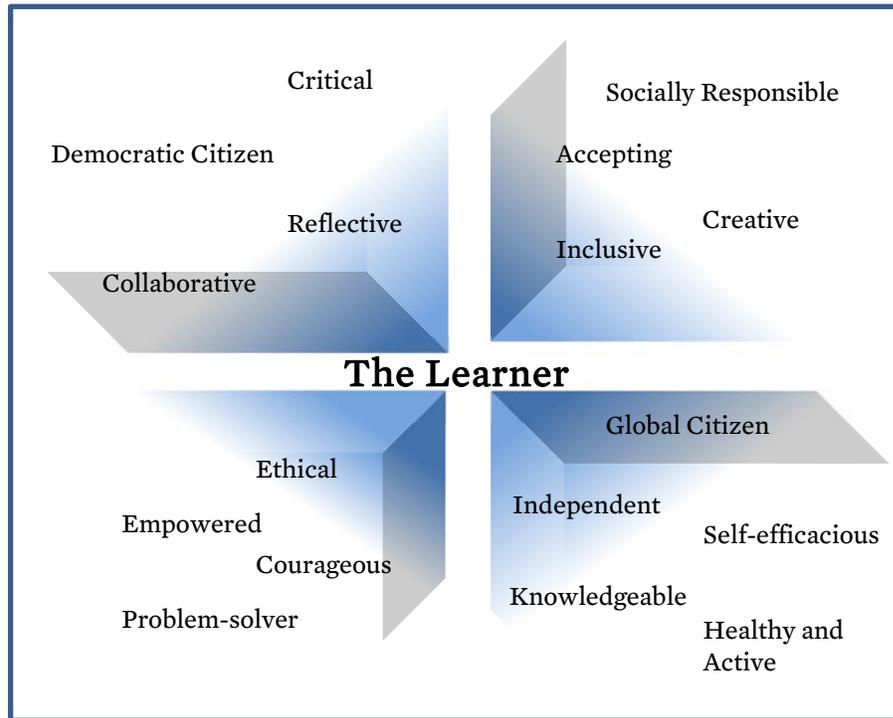


Figure 3: Image of the Learner

3. Regulatory Context

The College is the self-regulating body for the teaching profession in Ontario. The College's responsibility related to courses leading to Additional Qualifications includes the following:

- to establish and enforce professional standards and ethical standards applicable to members of the College
- to provide for the ongoing education of members of the College
- to accredit Additional Qualification courses and more specifically,

The program content and expected achievement of persons enrolled in the program match the skills and knowledge reflected in the College's "Standards of Practice for the Teaching Profession" and the "Ethical Standards for the Teaching Profession" and in the program guidelines issued by the College. (Regulation 347/02, Accreditation of Teacher Education Programs, Part IV, Subsection 24).

Additional Qualifications for teachers are identified in the *Teachers' Qualifications Regulation* (Regulation 176/10). This regulation includes courses that lead to Additional Qualifications, the Principals' Development Qualification, the Principal's Qualifications, the Primary Division, the Junior Division and the Supervisory Officer's Qualifications. A session of a course leading to an Additional Qualification shall consist of a minimum of 125 hours as approved by the Registrar. Accredited Additional Qualification courses reflect the *Ethical Standards for the Teaching Profession*, the *Standards of Practice for the Teaching Profession* and the *Professional Learning Framework for the Teaching Profession*.

The AQ course developed from this guideline is open to candidates who meet the entry requirements identified in the *Teachers' Qualifications Regulation*.

Successful completion of Additional Qualification Course: *Teaching Green Industries – Agriculture*, listed in Schedule F of the *Teachers' Qualifications Regulation*, is recorded on the Certificate of Qualification and Registration.

4. Foundations of Professional Practice

The *Foundations of Professional Practice* conveys a provincial vision of what it means to be a teacher in Ontario. This vision lies at the core of teacher professionalism. The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* (Appendix 1) are the foundation for the development and implementation of the Additional Qualification course. These nine standards, as principles of professional practice, provide the focus for ongoing professional learning in the Additional Qualification Course: *Teaching Green Industries – Agriculture*. In addition, the *Professional Learning Framework for the Teaching Profession* is underpinned by the standards, articulates the principles on which effective teacher learning is based and acknowledges a range of options that promote continuous professional learning.

The ongoing enhancement of informed professional judgment, which is acquired through the processes of lived experience, inquiry and critical reflection, is central to the embodiment of the standards and the *Professional Learning Framework for the Teaching Profession* within this AQ course and professional practice.

The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* serve as guiding frameworks that underpin professional knowledge, skills and experiences that teachers require in order to teach effectively within and contribute to an environment that fosters *respect, care, trust and integrity*.

Teacher Education Resources

The College has developed resources to support the effective integration of the standards within Additional Qualification courses. These teacher education resources explore the integration of the standards within professional practice through a variety of educative, research and inquiry-based processes. These resources can be found on the College web site:

<http://www.oct.ca/resources/categories/professional-standards-and-designation>

These teacher education resources support the development of professional knowledge, judgment and efficacy through critical reflective praxis. The lived experiences of Ontario educators are illuminated in these teacher education resources and serve as key supports for AQ courses.

5. Pedagogical Inquiry Framework

The pedagogical inquiry framework (Figure 4) for *Teaching Green Industries – Agriculture* supports a holistic, integrated, experiential and inquiry-based AQ course. This pedagogical inquiry framework supports the professional knowledge, judgment, critical pedagogies and practices of course candidates.



Figure 4: Pedagogical Inquiry Framework for *Teaching Green Industries – Agriculture*

A. The Ethical Standards for the Teaching Profession and the Standards of Practice for the Teaching Profession

The *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* represent a collective vision of professional practice. At the heart of a strong and effective teaching profession is a commitment to students and their learning. Members of the Ontario College of Teachers, in their position of trust, demonstrate responsibility in their relationships with students, parents, guardians, colleagues, educational partners, other professionals, the environment and the public.

The holistic integration of the standards within all course components supports the embodiment of the collective vision of the teaching profession that guides professional knowledge, learning and practice. The following principles and concepts support this holistic integration within the AQ course:

- understanding and embodying care, trust, respect and integrity
- fostering commitment to students and student learning
- integrating professional knowledge
- enriching and developing professional practice
- supporting leadership in learning communities
- engaging in ongoing professional learning.

Course candidates will continue to critically inquire into professional practices, pedagogies and ethical cultures through professional dialogue, collaborative reflection and the lenses of the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*.

B. Guiding Concepts for Pedagogical Inquiry

The following theoretical concepts are provided to facilitate the holistic design and implementation of this AQ course through pedagogical and professional inquiries.

This Additional Qualification course supports critical reflective inquiry and dialogue informed by the following concepts which will be critically explored through holistic and interrelated processes:

- critically exploring assumptions, beliefs and understandings associated with teaching and learning within the context of this AQ
- critically exploring the professional identity and practices associated with the views of teachers as co-inquirers, teacher scholars and teacher researchers working alongside student researchers in the co-creation of democratic, knowledge-rich learning environments
- critically exploring and interpreting Ontario's curriculum, policies, frameworks, strategies and guidelines related to the Broad Based Technology

- collaboratively examining and integrating the meaningful and respectful inclusion of First Nations, Métis and Inuit ways of knowing, cultures, histories and perspectives in teaching and learning processes as valid means to understand the world
- critically exploring multiple ways of knowing and being in community
- applying critical pedagogy as a theoretical foundation for the design, assessment and implementation of practices and/or programs
- critically exploring pedagogical processes and assessment and evaluation practices that link curriculum to student interests, strengths, inquiries, needs, resiliency, well-being and mental health
- critically examining processes, practices and policies to create and sustain holistic learning environments that nurture the intellectual, social, emotional, physical, linguistic, cultural, spiritual and moral development of the student
- engaging and collaborating with school personnel, parents/guardians, caregivers, the community, local business and industry as it relates to *Teaching Green Industries – Agriculture*
- critically exploring engagement processes and practices that foster collaboration with in-school personnel, parents/guardians and the community to support student learning, resiliency and well-being
- critically exploring and integrating a variety of resources, including technological and communication resources, to enhance professional knowledge in support of student learning, independence, well-being and agency
- critically exploring professional practice through ongoing collaborative inquiry, dialogue, reflection, innovation and critical pedagogy
- critically examining the ethical principles, ethical knowledge and ethical actions that contribute to collective ethical pedagogy and leadership
- critically exploring and integrating environmentally sustainable practices, policies and pedagogies
- critically examining processes to foster responsible and active environmental stewardship, social justice and democratic citizenship
- collaboratively exploring the co-construction of communities of inquiry committed to critical pedagogy, ongoing professional learning and collective professional efficacy

- critically exploring innovative practices for integrating information and communication technology to enhance teaching and learning
- critically examining the processes involved in creating and sustaining safe, healthy, equitable, holistic and inclusive learning environments that honour and respect diversity, facilitate student learning, foster student voice, encourage critical thinking and promote social justice
- critically examining qualitative and quantitative research associated with professional practices, policies and pedagogies in support of student learning, empowerment and agency
- critically exploring and integrating educational processes, practices and policies that support students' well-being, resiliency, efficacy and mental health
- critically exploring and integrating inclusive processes for fostering interprofessional collaboration that support the collaborative development and implementation of Individual Education Plans (IEPs) and Transition Plans for students
- critically examining processes, practices and policies that contribute to a school and/or system culture of inquiry that promotes openness to innovation, change, culturally inclusive pedagogies and the democratization of knowledge
- critically exploring and integrating emerging technologies that support *Teaching Green Industries – Agriculture*
- critically reflecting on health and safety risks associated with *Teaching Green Industries – Agriculture*
- critically applying knowledge and skills to create and maintain a safe learning environment that addresses program needs: curriculum, material handling, tool handling and equipment storage, supervision, safety standards and practices that are respectful of the environment
- collaboratively exploring and integrating technological literacy related to *Teaching Green Industries – Agriculture*
- designing and managing portfolios as well as developing written technical reports
- critically exploring and integrating mathematical literacy in *Teaching Green Industries – Agriculture*
- collaboratively exploring business management and entrepreneurial practices related to *Teaching Green Industries – Agriculture*

- collaboratively and critically inquiring into practice through reflection, active engagement and innovation
- critically reflecting on the various professional practices and career opportunities associated with *Teaching Green Industries – Agriculture*
- critically exploring and integrating differentiated instruction, universal design and experiential learning to support student growth and development.

C. Ontario Context: Curriculum, Policies, Legislation, Frameworks, Strategies and Resources

The Additional Qualification Course: *Teaching Green Industries – Agriculture* is aligned with current Ontario curriculum, relevant legislation, government policies, frameworks, strategies and resources. These documents inform the design, development and implementation of the Additional Qualification Course: *Teaching Green Industries – Agriculture* and can be viewed at www.edu.gov.on.ca.

Course candidates are also encouraged to critically explore the policies, practices and resources available at school and board levels that inform teaching and learning related to *Teaching Green Industries – Agriculture*.

D. Theoretical Foundations of Teaching Green Industries – Agriculture

The exploration of the following guiding concepts will be facilitated through holistic and interrelated inquiry processes:

- critically exploring various theoretical frameworks underpinning this AQ, the principles fundamental to these frameworks and their practical applications in supporting student learning
- critically exploring the relevance of critical pedagogy and constructivist theories as theoretical foundations for this AQ
- critically exploring current theoretical research, literature and scholarship related to this AQ

- critically exploring the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* as theoretical foundations for teacher professionalism within the Additional Qualification Course: *Teaching Green Industries – Agriculture*
- critically reflecting on teaching practice and engaging in professional dialogue regarding the relationship between theory and practice, as well as between practice and theory
- critically exploring critical pedagogy that is committed to curriculum design using students' inquiry questions, passions and interests
- critically exploring theories of child and adolescent development
- critically exploring Ontario curriculum, resources and government policies, frameworks and strategies related to *Teaching Green Industries – Agriculture*
- critically exploring and integrating learning theories and the individual learning strengths, styles and needs of students
- critically and collaboratively inquiring into the dimensions associated with creating and sustaining safe, inclusive, accepting and engaging learning environments
- critically exploring and integrating holistic and inclusive educational programs that build on learners' abilities and empower them to reach their learning goals
- critically exploring the significance of relevant legislation including the Ontario Human Rights Code, the Canadian Charter of Rights and Freedoms, Safe Schools Act, Accepting Schools Act, Ontarians with Disabilities Act, Municipal Freedom of Information and Protection of Privacy Act (MFIPPA), the Accessibility for Ontarians with Disabilities Act (AODA) and associated responsibilities of professional practice
- critically exploring teachers' legal obligations and ethical responsibilities according to current provincial legislation and practices
- critically exploring and integrating problem solving processes, methods and approaches as they relate to *Teaching Green Industries – Agriculture*
- critically exploring and integrating the fundamental technological concepts associated with *Teaching Green Industries – Agriculture*.

E. Program Design, Planning and Implementation

The exploration of the following guiding concepts will be facilitated through holistic and interrelated inquiry processes:

- critically exploring and deepening understanding of how the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* can inform a program planning framework
- critically exploring the influence of society's diverse and changing nature on student learning, resiliency and well-being
- critically exploring and deepening understanding of program design, planning, development and implementation strategies and frameworks related to *Teaching Green Industries – Agriculture*
- critically exploring the philosophical underpinnings that strengthen teachers' professional efficacy to support curricular and interdisciplinary integration
- critically exploring various approaches to curricular integration through diverse planning models, content and resource development, pedagogical practices and the implementation of equitable assessment and evaluation practices
- critically exploring and deepening understanding of differentiated instruction, universal design and the tiered approach in program planning, development and implementation
- critically exploring learning resources that support student learning and engagement (for example, print, visual and digital)
- critically exploring the types of secondary school pathways (including apprenticeship, college, university and workplace) and their relationship to students' post-secondary goals and career opportunities
- critically exploring how students' lived experiences, development, strengths, inquiries, interests and needs can inform program planning, development and implementation
- critically exploring the integration of culturally inclusive pedagogies within program design, planning and development
- critically exploring strategies that support learners' resiliency, well-being and mental health
- critically exploring planning and instructional processes that honour students' learning styles, strengths and experiences

- facilitating shared leadership in the implementation of local and provincial guidelines and policies that support safe and effective learning environments
- critically inspecting and reporting on the learning environment, facilities, equipment needs, resources and state of maintenance and repair for delivering *Teaching Green Industries – Agriculture*
- critically applying the theoretical foundations of *Teaching Green Industries – Agriculture* by incorporating the broad-based pedagogical approach that embeds problem solving and fundamental technological concepts
- fostering leadership and shared responsibility for the safe, ethical and legal use of technology in *Teaching Green Industries – Agriculture* programs
- critically exploring pedagogical documentation and utilizing a variety of assessment processes to inform program planning, support student learning and foster student engagement.

F. Learning Environments and Instructional Strategies

The exploration of the following guiding concepts will be facilitated through holistic and interrelated inquiry processes:

- critically exploring processes for the creation of inclusive and vibrant learning environments that reflect the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*
- creating and sustaining positive, ethical, equitable, accepting, inclusive, engaging and safe learning environments
- critically exploring processes for engaging all members of the community, supporting dialogue and collegiality and nurturing a sense of belonging
- critically exploring processes for fostering a collaborative community of empowered and engaged learners
- fostering engaging, trusting and inviting learning environments that promote student voice, leadership, critical inquiry and self-regulation
- critically exploring a variety of instructional strategies to support student learning, resiliency and well-being
- cultivating safe, ethical, legal and respectful practices in the use of information and communication technologies to support pedagogical practices

- critically exploring inclusive and innovative learning environments that integrate a variety of instructional strategies to respond the interests, strengths and needs of all learners (for example, universal design, experiential learning, differentiated instruction, inquiry and the tiered approach)
- critically exploring processes that engage students as active, democratic and global citizens in supporting environmental, social and economic sustainability
- critically exploring the professional identity, knowledge and leadership practices of educators as described in the *Ethical Standards for the Teaching Profession*, the *Standards of Practice for the Teaching Profession*, the *Professional Learning Framework for the Teaching Profession* and the *Foundations of Professional Practice*
- fostering shared leadership and responsibility for the safe and effective management of a variety of technical learning environments
- promoting a shared commitment and responsibility towards planning, organizing and implementing effective health, safety, sanitation and environmental standards in the *Teaching Green Industries – Agriculture* facility
- cultivating a culture of shared leadership and responsibility towards facility design and maintenance practices as per industry standards
- fostering a culture of collective understanding and compliance with workplace health and safety legislation and standards related to *Teaching Green Industries – Agriculture*.

G. Reflecting, Documenting and Interpreting Learning

The exploration of the following guiding concepts will be facilitated through holistic and interrelated inquiry processes:

- critically exploring fair, equitable, transparent, valid and reliable assessment and evaluation methods that honour the dignity, emotional wellness and cognitive development of all students
- critically exploring feedback processes that empower and inspire students to positively reflect on and identify goals for their learning
- fostering an examination of feedback that engages students in the critical analysis and interpretation of the learning process

- critically exploring culturally inclusive processes for reflecting, documenting and interpreting learning
- critically exploring and integrating assessment, evaluation and reporting practices that align with the principles and processes of Ontario's curriculum, frameworks and policy documents
- critically exploring assessment practices for the following three purposes: to provide feedback to students and to adjust instruction (assessment for learning); to develop students' capacity to be independent, autonomous learners (assessment as learning); to make informed judgements about the quality of student learning (assessment of learning).

H. Shared Responsibility for Learning

The exploration of the following guiding concepts will be facilitated through holistic and interrelated inquiry processes:

- critically exploring a variety of effective communication and engagement strategies for authentic collaboration with parents/guardians, school/board personnel and community agencies
- fostering partnerships with parents/guardians that honour and value shared decision-making, advocacy and leadership
- critically and creatively exploring processes to encourage and honour student voice and identity in the learning process through shared decision-making and leadership
- critically exploring strategies and opportunities for professional collaboration that support student learning, resiliency, well-being and leadership
- critically exploring and openly addressing biases, discrimination and systemic barriers in order to support student learning, resiliency, well-being and inclusion
- critically exploring and analyzing positive, inclusive educational and professional cultures in which perspectives are freely-expressed and critically analyzed
- understanding and respecting the importance of shared responsibility and partnership that promote social and ecological justice as conveyed in the *Foundations of Professional Practice*

- collaboratively designing strategies for establishing links between the school community, industry and the *Teaching Green Industries – Agriculture* program
- critically exploring and integrating sector-specific learning opportunities in other curriculum areas
- critically exploring professional collaboration within interdisciplinary teams to support student learning, resiliency, self-advocacy and transitions.

I. Research, Professional Learning and the Scholarship of Pedagogy

The exploration of the following guiding concepts will be facilitated through holistic and interrelated inquiry processes:

- critically exploring and reflecting on past, current and evolving practices in teaching green industries and agriculture
- critically exploring professional practice through ongoing inquiry into theory and pedagogy/andragogy
- engaging in transformational professional learning through research, scholarship and leadership
- critically exploring critical pedagogy that integrates research and the scholarship of pedagogy/andragogy into teaching practice
- engaging in research and the scholarship of critical pedagogy/andragogy to advance communities of practice
- critically exploring knowledge-creation and mobilization to enhance professional practice and leadership.

6. Instructional Design and Practices in the Additional Qualification Course: Teaching Green Industries – Agriculture

The instructional design and practices (Figure 5) employed in this AQ course reflect adult learning theories, effective andragogical processes and experiential learning methods that promote critical reflection, dialogue and inquiry.

Candidates collaboratively develop with course instructors the specific learning inquiries, learning experiences, holistic integration processes and forms of assessment and evaluation that will be used throughout the course.

In the implementation of this Additional Qualification course, instructors **facilitate** andragogical processes that are relevant, meaningful and practical to provide candidates with inquiry-based learning experiences related to program design, planning, instruction, pedagogy, integration and assessment and evaluation. The andragogical processes include but are not limited to: experiential learning, role-play, simulations, journal writing, self-directed projects, independent study, small group interaction, dialogue, action research, inquiry, pedagogical documentation, collaborative learning, narrative, case methodologies and critical reflective praxis.



Figure 5: Instructional Processes

Instructors **embody** the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*, honour the principles of adult learning, respect candidates' experience, recognize prior learning, integrate culturally inclusive practices and respond to individual inquiries, interests and needs. Important to the course are opportunities for candidates to create support networks, receive feedback from colleagues and instructors and share their learning with others. Opportunities for professional reading, reflection, dialogue and expression are also integral parts of the course.

Instructors **model** critical inquiry, universal design and differentiated instruction and assessment practices that can be replicated or adapted in a variety of classroom settings.

Experiential Learning

Candidates will be provided with opportunities to engage in experiential learning related to key concepts and aspects of *Teaching Green Industries – Agriculture* as collaboratively determined by both the instructor and course candidates. The intent of the experiential learning opportunities is to support the application and integration of practice and theory within the authentic context of teaching and learning. Candidates will also engage in critical reflection and analysis of their engagement in experiential learning opportunities and inquiries related to *Teaching Green Industries – Agriculture*. The professional judgment, knowledge, skills, efficacy and pedagogical practices of candidates will be enhanced and refined through experiential learning and critical inquiry.

The College’s standards-based resources help to support experiential learning through various professional inquiry processes. These can be found at: <http://www.oct.ca/resources/categories/professional-standards-and-designation>

7. Assessment and Evaluation of Candidates

At the beginning of the course, candidates will collaboratively develop with course instructors the specific learning inquiries, learning experiences and forms of assessment and evaluation that will be used throughout the course. Instructors will provide opportunities for regular and meaningful feedback regarding candidates’ progress throughout the course.

A balanced approach to candidate assessment and evaluation is used. It includes the combination of self, peer and mutual (instructor and candidate) assessment, as well as instructor evaluation. The assessment and evaluation strategies reflect effective, collaborative and inquiry-based practices. A variety of assessment approaches will be used that enable candidates to convey their learning related to course inquiries. The course provides opportunities for both formative and summative assessment and evaluation.

Central to candidates enrolled in Additional Qualification courses is the opportunity to be engaged in relevant and meaningful inquiries. Assignments, artefacts and projects enable candidates to make connections between theory and practice. At the same time, assignments also allow candidates flexibility, choice and the opportunity to design individual inquiry opportunities.

Learning processes support an in-depth exploration of concepts and inquiries. These processes occur over the duration of the course and are reflective of critical thinking and reflection as the candidate gains knowledge and skills over the duration of the course.

The evaluation practices will also support significant and in-depth critical inquiries utilizing a variety of processes over the duration of the course. These inquiry-based assessment processes provide opportunities for candidates to illustrate a depth of professional knowledge, skills, pedagogies, ethical practices and instructional leadership.

A final culminating experience in the course is recommended. This synthesis experience will reflect the in-depth knowledge and understanding gained as a result of engagement in this AQ. It will also include critical reflections and an analysis of a candidate's learning over time.

The following processes are provided to guide assessment practices within this AQ course and are reflective of experiential learning and critical pedagogies. This list is not exhaustive.

<p>a) Pedagogical Leadership: co-constructing, designing and critically assessing culturally inclusive learning opportunities that integrate student voice, strengths, interests and needs. The learning opportunities will incorporate a variety of technologies and resources and are reflective of Ministry of Education curriculum</p> <p>b) Pedagogical Portfolio: creating a professional portfolio that critically analyzes teaching and learning philosophies, assumptions, practices and pedagogies designed to inform ethical and democratic learning environments</p>	<p>g) Narrative Inquiry: collaboratively and critically analyzing narratives of teaching and learning through a number of lenses (for example, professional identity, professional efficacy, ethical leadership and critical pedagogies) utilizing the processes of narrative writing and/or narrative discussion</p> <p>h) Innovative Learning Experience: designing and facilitating an engaging, innovative learning experience that reflects differentiated instruction, universal design and the tiered approach</p> <p>i) IEP Development: collaboratively developing an IEP with the family, student and school team</p>
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<p>c) Pedagogical Documentation: assembling visible records (for example, written notes, photos, videos, audio recordings, artefacts and records of students' learning) that enable teachers, parents and students to discuss, interpret and reflect upon the learning process</p> <p>d) Critical Action Research: engaging in individual and/or collaborative action research that is informed by the critical exploration of various action research approaches</p> <p>e) Case Inquiry: critically reflecting on and inquiring into professional practice through case writing and/or case discussion</p> <p>f) Transition Plan: critically reflecting on and analyzing a student transition plan and generating recommendations for enhancement</p>	<p>j) Partnership Plan: designing a comprehensive plan that engages students, families and the school and local communities in collaborative partnerships that support student learning, growth, resiliency and well-being</p> <p>k) Critical Reflection: critically analyzing educational issues associated with this AQ utilizing scholarly research through multiple representations (for example, narratives, written documentation and images or graphics)</p> <p>l) Visual Narrative: creating a visual narrative (for example, digital story) that helps to support the collective professional identity of the teaching profession and advances professional knowledge and pedagogy.</p>
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8. Demonstrated Knowledge and Skill in Teaching Green Industries – Agriculture

Successful candidates will be able to demonstrate technical knowledge and skill in the following:

Species Classification and Geographical Regions	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to distinguish between:</p> <ul style="list-style-type: none"> • regional agricultural crops (for example, fruits, vegetables, cash crops forages and trees) • regional agricultural livestock (for example, beef, dairy, poultry, swine, hogs, equestrian and aquaculture). <p>Be able to identify:</p> <ul style="list-style-type: none"> • geographic regions by classifying criteria such as plant hardiness zones, growing degree days and soil types. <p>Be able to compare:</p> <ul style="list-style-type: none"> • different ecosystems (for example, field, tunnel, greenhouse and conventional versus organic). 	<p>Be able to identify:</p> <ul style="list-style-type: none"> • regional agricultural crops and livestock by characteristics using both common and scientific names. <p>Be able to select:</p> <ul style="list-style-type: none"> • the best available ecosystem for a particular crop • the best plant variety or livestock breed for a particular geographic region.
Factors Affecting Growth and Product Quality	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to analyze:</p> <ul style="list-style-type: none"> • effects of abiotic factors (for example, light, temperature, soils, nutrients, moisture, topography, carbon dioxide level and ethylene gas) on plant and animal growth and 	<p>Be able to identify:</p> <ul style="list-style-type: none"> • common agricultural pests (for example, white fly, aphid, mite, European corn borer, emerald ash borer, ticks and worms) • common agricultural diseases (for

<p>quality (for example, south to north rows give more uniform sun exposure for both plant or fruit, east to west rows provide better air flow and plant tissue drying time and better feed ration produces healthier livestock with a better immune system)</p> <ul style="list-style-type: none"> • effects of biotic factors (common agriculture pests, diseases and weeds) on growth and quality (for example, weed pressure and virus or bacteria) • effects of interactions between abiotic, biotic and cultural factors for different environments (for example, greenhouse, fields and barns). <p>Be able to compare:</p> <ul style="list-style-type: none"> • the effectiveness of different integrated pest management techniques (for example, cultural [such as, tilling and pruning], physical [such as, crop rotation, companion planting and barriers], environmental [such as, beneficial insects], biological [such as, fungi and micronutrients], chemical [such as, pheromones for mating disruption and predator friendly chemicals]). 	<p>example, scab, blight founder and dysentery).</p> <p>Be able to use:</p> <ul style="list-style-type: none"> • a variety of integrated pest management techniques to grow healthy crops or raise healthy livestock.
Designs, Process and Systems	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to identify and describe:</p> <ul style="list-style-type: none"> • the design process as applied to farming systems (for example, watering, feeding, harvesting and 	<p>Be able to create and use:</p> <ul style="list-style-type: none"> • a crop rotation plan • processes and techniques relating to propagation, maintenance and care of plants and livestock (for example,

<p>processing)</p> <ul style="list-style-type: none"> the design process steps specific to farming (for example, market and risk analysis, crop or livestock selection, capital equipment requirements and availability, labour availability, farm site plan, production, marketing and profit/loss analysis). 	<p>propagating for seed or cuttings, incubating chicken eggs and raising them, feeding, watering and cleaning of livestock pen such as a chicken coop)</p> <ul style="list-style-type: none"> a simple automated watering system for plants a simple water and feeding system for livestock.
Numeracy, Literacy, Research, Communication	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to demonstrate an understanding of:</p> <ul style="list-style-type: none"> key terminology used in agriculture (for example, farm business plan, precision agriculture, integrated pest management and sustainable agriculture) regional agricultural crop and livestock for oral and written communication. <p>Be able to interpret:</p> <ul style="list-style-type: none"> common agriculture symbols and abbreviations (for example, nitrogen-phosphorous-potassium [n-p-k], zinc [Zn], carbon [C], magnesium [Mg], Ontario Ministry of Agriculture, Food and Rural Affairs [OMAFRA], Integrated Pest Management [IPM], Genetically Modified Organism [GMO], Hazard Analysis Critical Control Point [HACCP] and Canadian Food Inspection Agency [CFIA]) typical length, area, volume and Global Positioning System (GPS) 	<p>Be able to use:</p> <ul style="list-style-type: none"> common names and scientific names for regional crops and livestock common agriculture symbols and abbreviations (for example, nitrogen-phosphorous-potassium [n-p-k], zinc [Zn], carbon [C], magnesium [Mg], Ontario Ministry of Agriculture, Food and Rural Affairs [OMAFRA], Integrated Pest Management [IPM], Genetically Modified Organism [GMO], Hazard Analysis Critical Control Point [HACCP] and Canadian Food Inspection Agency [CFIA]) typical length, area, volume and Global Positioning System (GPS) measurements. <p>Be able to apply:</p> <ul style="list-style-type: none"> accurate mathematical calculations such as fence length, field acreage, chemical/fertilizer ratios, feed rations and sales invoices imperial to metric conversion accurate terminology to complete production and spray records and

<p>measurements</p> <p>Be able to identify and describe:</p> <ul style="list-style-type: none"> • cost of production analysis • cash flow, financing analysis and crop insurance. 	<p>Hazard Analysis Critical Control Point (HACCP) documentation for field to fork food safety.</p>
Design Production	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
	<p>Be able to create and apply:</p> <ul style="list-style-type: none"> • a production plan based on the design process focusing on market needs, financing, production, analysis and sustainability (for example, raise hens for egg production that can be used in hospitality or be sold to staff to pay for chicken feed and produce vegetables or herbs for use in culinary dishes).
Plant and Animal Management Strategies	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to analyse:</p> <ul style="list-style-type: none"> • biotic and abiotic conditions that affect plant and animal health. 	<p>Be able to create and apply:</p> <ul style="list-style-type: none"> • a variety of pest and disease control techniques and assess their efficacy and environmental impact • best management practices to enhance agricultural sustainability (for example, supporting or initiating eat local programs).
Technical Skills	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
	<p>Be able to demonstrate:</p> <ul style="list-style-type: none"> • competence in agricultural technical skills (for example, soil sampling, soil tillage, seeding, fertilizing and

	<p>programming a watering system, livestock chores such as feeding and cleaning out pens)</p> <ul style="list-style-type: none"> • competence in building common agricultural structures (for example, cold frame, trellis, livestock pen and chicken coup or chicken tractor) • competence in related technical skills (for example, carpentry, small engine operation and maintenance, interpretation of commodities markets and veterinary procedures such as administering medications and birthing assistance) • competence in specialized skills (for example, hydroponics, precision agriculture, organic agriculture, aquaculture).
Technology and the Environment	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to evaluate and analyze:</p> <ul style="list-style-type: none"> • agricultural operations and processes in terms of environmental impact and ways to enhance their environmental sustainability (for example, conventional versus organic, monocultures versus biodiversity, Genetically Modified Organism (GMO) and effects on pesticide use, livestock breeding for production and effects on animal health). <p>Be able to describe:</p> <ul style="list-style-type: none"> • methods that balance economic sustainability and environmental responsibilities (for example, organic 	

<p>production, buffer zones to prevent water contamination and community supported agriculture [CSA])</p> <ul style="list-style-type: none"> • benefits of alternative practices that reduce environmental impact (for example, biogas generation and alterative livestock systems) • legislation, regulations, standards and guidelines relating to environmental protection that impact agricultural operations (for example, Greenbelt Act, Nutrient Management Act, Source Water Protection, National Farm Animal Care Council and Environmental Farm Plan). 	
Technology and Society	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to analyze:</p> <ul style="list-style-type: none"> • the effect of social, economic and cultural characteristics of the community on local agriculture. <p>Be able to assess:</p> <ul style="list-style-type: none"> • the economic importance of linkages to related industries (for example, consulting services, plant and animal genetics, food processing, farm implements, chemical and fertilizer, farm buildings construction and transportation). 	

Local / Global Industries	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to identify and describe:</p> <ul style="list-style-type: none"> local agricultural areas of significance (for example, Niagara's Wine Belt, Great Lakes tender fruit district and Holland Marsh). 	<p>Be able to create and maintain:</p> <ul style="list-style-type: none"> professional networks to include local businesses, attractions and destinations and post-secondary programs to support student learning and development through experiential learning (for example, class trips, guest speakers, job shadowing, volunteerism, scholarships and donations).
Professional Practice	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to identify and to describe:</p> <ul style="list-style-type: none"> industry associations, government departments and non-governmental organizations that are involved with matters that affect landscape architecture (for example, Ontario Ministry of Agriculture, Food and Rural Affairs [OMAFRA] and Ministry of the Environment, Canadian Food Inspection Agency [CFIA]) common hazards in an agricultural setting (for example, ergonomic hazards [such as Carpal Tunnel Syndrome], mechanical hazards [such as pinch points on machinery], chemical hazards [such as applying chemicals or re-entry periods where chemicals have been used]) and sources of information for training and accident prevention. 	<p>Be able to demonstrate:</p> <ul style="list-style-type: none"> the ability to make safety decisions for personnel on the basis of tasks at hand, training and experience and equipment being used (for example, operating a tractor propeller harvester versus driving a tractor and wagon to or from the field and spraying herbicide to kill weeds versus removing weeds by pulling or hoeing) understanding of and applying safe procedures for using and maintaining materials, tools and equipment understanding of the Occupational Health and Safety Act as it applies to farming operations (for example, duties of employers, rights and responsibilities of workers) as well as the value and use in implementation of the Passport to Safety online challenges for teens and the

	workplace safety and prevention services.
Career Opportunities	
Technical Knowledge (Fundamentals/Foundations)	Technical Proficiencies (Skill Proficiencies)
<p>Be able to identify:</p> <ul style="list-style-type: none"> careers in agriculture that require postsecondary education and to describe the educational programs of study, the training and the certification(s) needed for entry into the various programs. <p>Be able to demonstrate:</p> <ul style="list-style-type: none"> understanding and application of the Essential Skills (for example, reading text, writing, document use, computer use, oral communication, numeracy and thinking skills) and Work Habits (for example, initiative, organization, accountability and ethical conduct) that are important for success in the agricultural industries, as identified in the Ontario Skills Passport. 	<p>Be able to create, maintain and use:</p> <ul style="list-style-type: none"> up-to-date portfolio that provides evidence of their skills and achievements in areas related to agriculture and explain why having a current portfolio is important for career development and advancement.

Appendix 1

The Ethical Standards for the Teaching Profession

The *Ethical Standards for the Teaching Profession* represent a vision of professional practice. At the heart of a strong and effective teaching profession is a commitment to students and their learning. Members of the Ontario College of Teachers, in their position of trust, demonstrate responsibility in their relationships with students, parents, guardians, families, colleagues, educational partners, other professionals, the environment and the public.

The Purposes of the Ethical Standards for the Teaching Profession are:

- to inspire members to reflect and uphold the honour and dignity of the teaching profession
- to identify the ethical responsibilities and commitments in the teaching profession
- to guide ethical decisions and actions in the teaching profession
- to promote public trust and confidence in the teaching profession.

The Ethical Standards for the Teaching Profession are:

Care

The ethical standard of *Care* includes compassion, acceptance, interest and insight for developing students' potential. Members express their commitment to students' well-being and learning through positive influence, professional judgment and empathy in practice.

justice, confidentiality, freedom, democracy and the environment.

Trust

The ethical standard of *Trust* embodies fairness, openness and honesty. Members' professional relationships with students, colleagues, parents, guardians, families and the public are based on trust.

Respect

Intrinsic to the ethical standard of *Respect* are trust and fair-mindedness. Members honour human dignity, emotional wellness and cognitive development. In their professional practice, they model respect for spiritual and cultural values, social

Integrity

Honesty, reliability and moral action are embodied in the ethical standard of *Integrity*. Continual reflection assists members in exercising integrity in their professional commitments and responsibilities.

The Standards of Practice for the Teaching Profession

The *Standards of Practice for the Teaching Profession* provide a framework of principles that describes the knowledge, skills and values inherent in Ontario's teaching profession. These standards articulate the goals and aspirations of the profession. These standards convey a collective vision of professionalism that guides the daily practices of members of the Ontario College of Teachers.

The Purposes of the Standards of Practice for the Teaching Profession are:

- to inspire a shared vision for the teaching profession
- to identify the values, knowledge and skills that are distinctive to the teaching profession
- to guide the professional judgment and actions of the teaching profession
- to promote a common language that fosters an understanding of what it means to be a member of the teaching profession.

The Standards of Practice for the Teaching Profession are:

Commitment to Students and Student Learning

Members are dedicated in their care and commitment to students. They treat students equitably and with respect and are sensitive to factors that influence individual student learning. Members facilitate the development of students as contributing citizens of Canadian society.

Professional Knowledge

Members strive to be current in their professional knowledge and recognize its relationship to practice. They understand and reflect on student development, learning theory, pedagogy, curriculum, ethics, educational research and related policies and legislation to inform professional judgment in practice.

Professional Practice

Members apply professional knowledge and experience to promote student learning. They use appropriate pedagogy,

assessment and evaluation, resources and technology in planning for and responding to the needs of individual students and learning communities. Members refine their professional practice through ongoing inquiry, dialogue and reflection.

Leadership in Learning Communities

Members promote and participate in the creation of collaborative, safe and supportive learning communities. They recognize their shared responsibilities and their leadership roles in order to facilitate student success. Members maintain and uphold the principles of the ethical standards in these learning communities.

Ongoing Professional Learning

Members recognize that a commitment to ongoing professional learning is integral to effective practice and to student learning. Professional practice and self-directed learning are informed by experience, research, collaboration and knowledge.