



Ontario
College of
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Ordre des
enseignantes et
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de l'Ontario

Additional Qualification Course Guideline Honour Specialist Science

Draft

Schedule E Teachers' Qualifications Regulation

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Additional Qualification Course Guideline Honour Specialist Science

1. Introduction

The *Honour Specialist Science* Additional Qualification course guideline provides a conceptual framework (Figure 1) for providers and instructors to develop and facilitate the *Honour Specialist Science* course. This guideline framework is intended to be a fluid, holistic and integrated representation of key concepts associated with Science.

The Additional Qualification (AQ) course guideline for *Honour Specialist Science* is organized using the following conceptual framework,

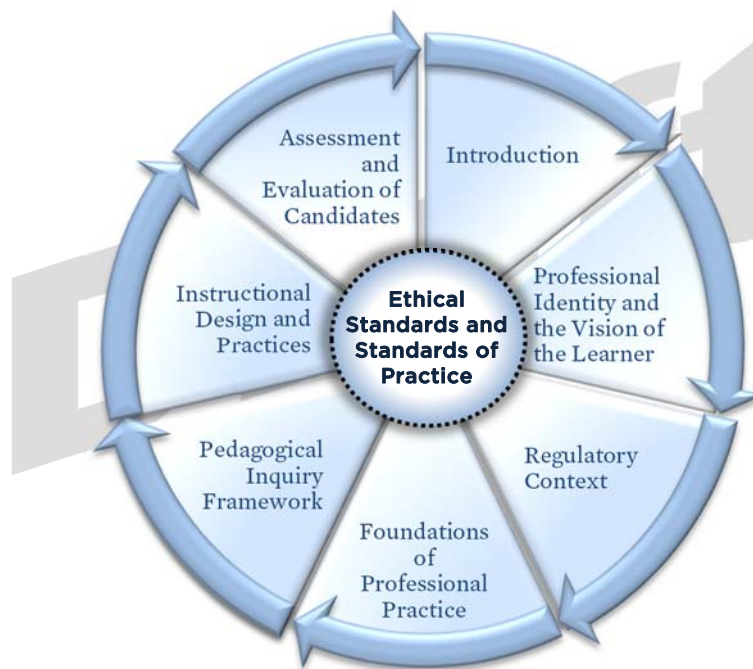


Figure 1: Conceptual Framework

The Additional Qualification Course: *Honour Specialist Science* 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.

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 *Honour Specialist Science* 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 Vision 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*, as well as through AQ consultations.

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:

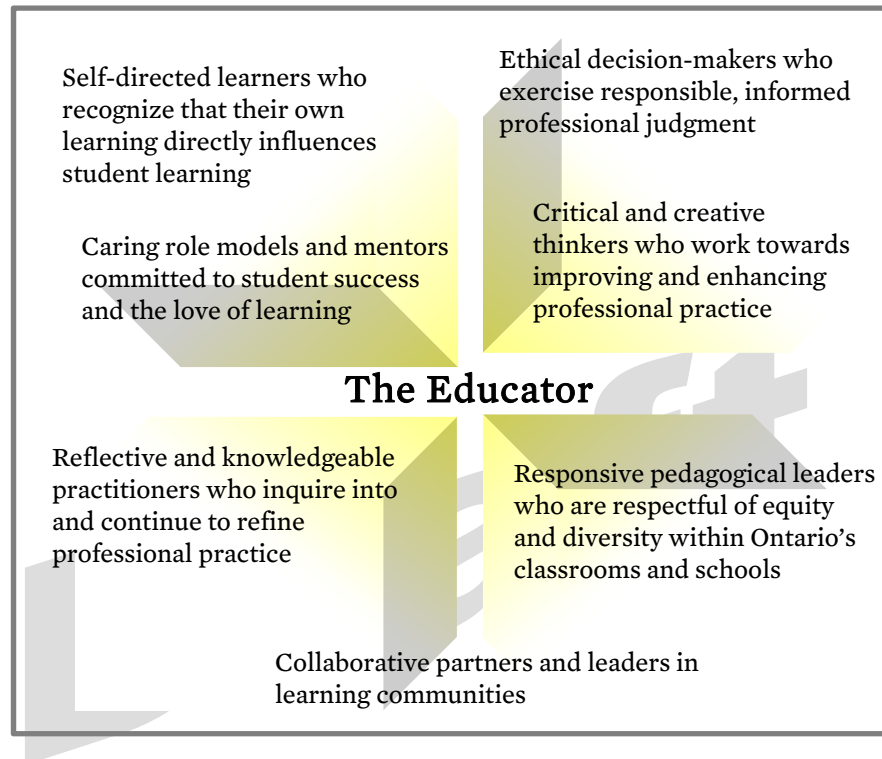


Figure 2: Vision of the Educator¹

The vision 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.

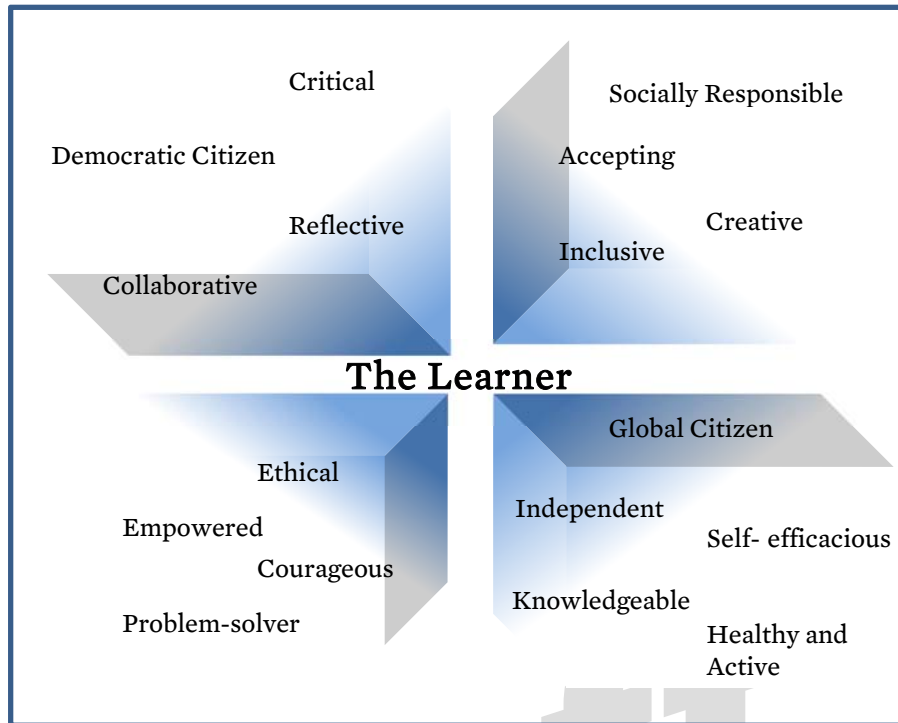


Figure 3: Vision of the Learner

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 Principal's 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 the course leading to the Additional Qualification Course: *Honour Specialist Science*, listed in Schedule E 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: *Honour Specialist Science*. 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 *Honour Specialist Science* 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 *Honour Specialist Science*

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, families, 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 equitable, holistic and interrelated processes:

- advancing a culture of critical inquiry that collectively examines assumptions, beliefs and understandings associated with teaching and learning within the context of this AQ
- advocating for a culture in which the professional identity and practices associated with the views of teachers as co-inquirers, teacher scholars and teacher researchers working alongside student researchers is upheld in the co-creation of democratic, knowledge-rich learning environments
- fostering a critical community of practice that collectively examines and integrates Ontario's curriculum, policies, frameworks, strategies and guidelines

- cultivating a school and/or system culture in which knowledge of First Nations, Métis and Inuit ways of knowing, cultures, histories and perspectives are meaningfully and respectfully included in teaching and learning processes as valid means to understand the world
- identifying and fostering the relationship between traditional ecological knowledge (TEK), Indigenous Knowledge (IK) and contemporary theories about the nature of the world
- fostering the collaborative and critical exploration of Indigenous Knowledge (IK) and Traditional Ecological Knowledge (TEK) in science education
- promoting a culture of shared leadership that thoughtfully examines critical pedagogy as a theoretical foundation associated with multiple ways of knowing and being in community
- collaboratively facilitating knowledge-mobilization and creation regarding the design, assessment and implementation of practices and/or programs at the local and district level
- nurturing a culture that collectively engages in the critical examination of pedagogical processes and assessment and evaluation practices that link curriculum to student interests, strengths, inquiries, needs, resiliency, well-being and mental health
- fostering a culture of critical and reflective leadership practices that is committed to creating and sustaining holistic learning environments that nurture the identities of students and their intellectual, social, emotional, physical, linguistic, cultural, spiritual and moral development
- fostering a critical culture of practice committed to thoughtfully examining collaborative leadership with students, in-school personnel, parents/guardians/families and the community to support the learning, identity, resiliency and well-being of the school community
- facilitating a critical culture of pedagogical practice committed to the thoughtful examination of a variety of resources, including technological and communication resources and partners in the community, to enhance professional knowledge in support of student learning, independence, well-being and agency
- promoting a culture of shared leadership committed to enhancing professional practice through ongoing collaborative inquiry, dialogue, reflection, innovation and critical pedagogy

- cultivating an ethical culture that openly engages in critical reflection and dialogue to enhance collective ethical leadership, ethical sensitivity and ethical efficacy
- promoting a culture of dialogue that critically addresses issues associated with environmentally sustainable practices, policies and pedagogies
- fostering a community of shared leadership committed to the critical examination of materials, tools and safe laboratory and field work practices
- nurturing a culture of ethical leadership that critically inquires into practices to promote responsible and active environmental stewardship, social justice and democratic citizenship
- fostering a culture of shared leadership committed to critically inquiring into the design, creation and implementation of communities of inquiry that promote transformational professional learning and collective professional efficacy
- fostering a culture of reflective practice that critically inquires into the design of innovative practices and shared leadership in the integration of information and communication technology to enhance teaching and learning
- cultivating a critical culture of inquiry that is committed to thoughtfully investigating the integration of innovative strategies for 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
- cultivating a culture that promotes and advocates for the participation of all students in Science, Technology, Engineering and Mathematics (STEM) learning
- fostering a culture of critical inquiry and dialogue committed to the thoughtful examination of qualitative and quantitative research that impact professional practices, policies and pedagogies in support of student learning, empowerment and agency
- cultivating a culture of inquiry and dialogue that critically examines pedagogical practices, policies and curricular experiences that support and maintain learners' well-being, resiliency, efficacy and mental health
- fostering the critical examination of ways to enhance students' scientific literacy, critical reflection and evidence-based thinking

- promoting a culture of interprofessional collaboration committed to critically inquiring into the collaborative development and implementation of Individual Education Plans (IEPs) and Transition Plans for students that include the voices of all those involved
- fostering a community of shared leadership committed to critically inquiring into how the school and/or system promotes openness to student-centred curriculum, innovation, change, culturally inclusive pedagogies and the democratization of knowledge
- cultivating a culture of inquiry and dialogue related to individual and systemic manifestations of power and privilege and their implications for teaching and learning
- facilitating knowledge-creation and mobilization and how to use metacognitive tools to promote student learning, skills, promote student empowerment, resiliency and efficacy in and beyond their learning environment
- fostering a culture of inquiry that reflects on the benefits of integrating student-initiated and led scientific investigations into the course curriculum
- fostering the collaborative exploration of strategies that promote student acquisition of scientific investigation skills, including research, critical thinking and communication
- fostering a community of reflective practice that explores the use of scientific literacy to empower students to advocate for personal and community safety and well-being
- fostering the critical exploration of strategies to support students' expanding their social/cultural/scientific dimensions by interpreting modern day environmental problems with Indigenous perspectives and acquiring alternate ways of seeking solutions
- fostering the exploration of how knowledge systems of all people are constantly changing in response to new knowledge.

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

The Additional Qualification Course: *Honour Specialist Science* 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: *Honour Specialist Science* 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 provincial school and board levels that inform teaching and learning related to *Honour Specialist Science*.

D. Theoretical Foundations of the Honour Specialist Science

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

- cultivating a culture that collectively critiques various theoretical frameworks underpinning this AQ, the principles fundamental to these frameworks and their practical applications in supporting student learning
- fostering a culture of critical inquiry related to theories of development and identity formation to inform practice and support student well-being, efficacy and agency
- advancing a reflective community of practice that explores the relevance of critical pedagogy and constructivist and other relevant theories as theoretical foundations for this AQ
- promoting a culture of critical dialogue and inquiry that investigates current theoretical research, literature and scholarship related to this AQ
- facilitating knowledge-creation and mobilization regarding the significance of the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession* as theoretical foundations for teacher professionalism within the context of the Additional Qualification Course: *Honour Specialist Science*
- nurturing a culture of critical inquiry that examines the relationship between theory and practice, as well as between practice and theory
- advancing a culture of critical pedagogy that is committed to curriculum design using students' inquiry questions, passions and interests
- cultivating a culture of critical inquiry related to Ontario curriculum, resources and government policies, frameworks and strategies related to *Honour Specialist Science*

- facilitating a culture of dialogue and leadership committed to honouring learning theories and the individual learning strengths, styles and needs of students
- fostering an ethical culture that engages in critical reflection regarding the dimensions associated with creating and sustaining safe, inclusive, accepting and engaging learning environments
- nurturing a critical community of practice that collaboratively designs holistic and inclusive educational programs, builds on learners' abilities and empowers them to reach their learning goals
- promoting a culture of critical inquiry that examines 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), Occupational Health and Safety Act (OHSA) and associated responsibilities of professional practice
- cultivating a culture of critical inquiry and dialogue that collectively explores teachers' legal obligations and ethical responsibilities according to current provincial legislation and practices
- cultivating an innovative culture that explores practices for integrating artistic and other creative expression to enhance teaching and learning in science
- advocating for the development and use of cross-curricular experiences and learning resources that explore the dependency of public/individual health and safety on global, regional and local social and economic systems.

E. Program Design, Planning and Implementation

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

- cultivating knowledge-creation and mobilization related to the conceptual integration of program planning frameworks that reflect the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*

- collaboratively facilitating critical inquiry into the design, development and implementation of programs that are responsive to society's diverse and changing nature and its influence on student learning, resiliency and well-being
- cultivating a culture of inquiry and innovative leadership related to program design, planning, development and implementation strategies and frameworks related to *Honour Specialist Science*
- creating a culture of inquiry that explores and extends understanding of the philosophical underpinnings that strengthen teachers' professional efficacy to support curricular and interdisciplinary integration
- promoting a culture of critical pedagogical practice that explores various approaches to curricular integration through diverse planning models, content and resource development, pedagogical practices and the implementation of equitable assessment and evaluation practices
- cultivating a culture of inquiry and innovative leadership related to Problem-Based Learning (PBL) and scientific inquiry in local environments
- cultivating a culture of critical inquiry and dialogue regarding the integration of concepts related to differentiated instruction, universal design and the tiered approach in program planning, development and implementation
- promoting an innovative culture committed to research-based, leading-edge and culturally inclusive learning resources that support student learning and engagement (for example, print, visual and digital)
- promoting a critical culture of inquiry and innovation that supports leading-edge learning opportunities and programs that support various educational pathways and goals
- developing and implementing employee/employer health and safety requirements for laboratory and fieldwork practices to enhance the learning environment for students
- fostering shared leadership in critically exploring, developing and implementing programs that respond to students' lived experiences, identities, narratives, development, strengths, inquiries, interests and needs
- fostering an innovative culture committed to critically and culturally inclusive pedagogies that support program design, planning and development

- nurturing a community of practice that evaluates and adapts curricular experiences and resources based on historical and cultural understandings of scientific theories, laws, principles and scientific progress
- collaboratively evaluating and adapting curricular experiences and resources based on scientific principles and theories and how they play a role in society and the workplace
- facilitating knowledge-creation and mobilization related to collaborative strategies that support and maintain learners' resiliency, well-being, self-regulation and mental health
- fostering a culture of shared leadership and critical inquiry related to the exploration and implementation of instructional processes that honour students' learning styles, voice, strengths and experiences
- promoting an innovative culture that critically inquires into various pedagogical documentation and assessment processes to advance program planning, support student learning and foster student engagement
- fostering the critical exploration of the nature and role of science in cross-curricular planning, including the inter-relationship between the sciences and mathematics
- fostering the critical exploration of curricular experiences that encourage student interest and investment in public health, nutrition and biotechnology
- fostering the critical exploration and implementation of engaging and empowering curricular experiences and learning resources that inspire connections with nature
- fostering the collaborative and critical evaluation and development of programs that integrate current local, national and global developments in science and related fields
- nurturing a culture of critical inquiry related to identifying, accessing, assessing and integrating pedagogical, community, print, technological, industrial and collegial resources that are relevant to *Honour Specialist Science* and support the Ontario curriculum in the Senior Division
- fostering the critical exploration of the alignment between science curriculum and educational/career pathways
- promoting a culture of critical exploration related to the examination of a variety of perspectives when discussing issues in *Honour Specialist Science*.

F. Leadership in the Instructional Setting

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

- facilitating the development of learning environments that promote leadership and critical inquiry
- facilitating knowledge-creation and mobilization related to inclusive and vibrant learning environments that reflect the *Ethical Standards for the Teaching Profession* and the *Standards of Practice for the Teaching Profession*
- cultivating shared leadership related to creating and sustaining positive, ethical equitable, accepting, inclusive, engaging and safe learning environments
- promoting a responsive culture that actively engages all members of the community, supports dialogue and collegiality and nurtures a sense of belonging
- fostering a culture of leadership focused on creating and sustaining a collaborative community of confident, empowered and engaged lifelong learners
- fostering the engineering design process used in technology (for example, define the problem, research/brainstorm solutions, design a prototype, build a prototype, test, refine and retest)
- cultivating a culture of critical inquiry that advocates for engaging, trusting and inviting learning environments that promote student engagement, trust, safety mindedness, voice, leadership, critical inquiry and self-regulation
- nurturing a culture of critical inquiry and innovation related to instructional strategies that supports student learning, resiliency and well-being
- fostering a responsible culture that critically inquires into safe, ethical, legal and respectful practices in the use of information and communication technologies to support pedagogical practices

- cultivating a culture committed to inclusive and innovative learning environments that integrate a variety of instructional strategies to respond to the interests and needs of all learners (for example, universal design, experiential learning, land-based learning, differentiated instruction, inquiry and the tiered approach)
- fostering a culture of ethical leadership committed to social justice that engages students as active, inquiring, democratic and global citizens in supporting environmental, social and economic sustainability
- promoting a culture of dialogue and critical inquiry that promotes the collective professional identity and leadership of educators reflected 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*
- cultivating a culture of consensus-building, participatory democracy and student empowerment at the school and community levels
- facilitating the application of safe practices in a variety of instructional settings
- fostering the critical exploration of the skills, strategies and habits of mind required for scientific inquiry as they apply to the learner
- fostering the critical exploration of strategies that help learners relate scientific and technological knowledge to their world
- nurturing the collective exploration of strategies to help students understand the complexities of scientific and technological developments
- developing and implementing employee/employer health and safety requirements for laboratory and fieldwork practices to enhance the learning environment for students.

G. Reflecting, Documenting and Interpreting Learning

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

- fostering a culture committed to fair equitable, transparent, valid and reliable assessment and evaluation methods that honour the dignity, emotional wellness, identity and development of all students

- promoting a culture of inquiry that critically examines feedback processes that empower and inspire students to positively reflect on and identify goals for their learning
- facilitating a community of practice committed to engaging students in the critical analysis and interpretation of the learning process
- fostering a culture of critical inquiry that employs equitable and inclusive processes for reflecting, documenting and interpreting learning
- fostering a culture of inquiry that critically examines assessment, evaluation and reporting practices that align with the principles and processes of Ontario's curriculum, frameworks and policy documents
- facilitating an ethical community of practice that critically integrates 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*)
- fostering the critical and collaborative exploration of strategies to engage students in deep critical reflection.

H. Shared Responsibility for Learning

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

- fostering an ethical culture that integrates a variety of effective communication and engagement strategies for ongoing collaboration with parents/guardians/families, school/board personnel and community agencies
- fostering and establishing a culture of ongoing and innovative partnerships with parents/guardians/families that honour and value shared decision-making, advocacy and leadership
- nurturing a culture of social justice where student voice and action are integral to the learning process, shared decision-making and leadership
- fostering an ethical culture that informs professional collaboration that supports student learning, resiliency, well-being and leadership

- fostering an ethical leadership culture that collectively and openly addresses biases, discrimination and systemic barriers in order to support student learning, resiliency, well-being and inclusion
- fostering a culture of professionalism that collectively transforms structures and systems that will enable diverse perspectives to be freely-expressed and critically analyzed
- nurturing ethical and professional dimensions of stewardship for transforming individual and collective educational practice
- fostering an ethical culture and dialogue committed to shared responsibility and partnership that promotes social and ecological justice as conveyed in the *Foundations of Professional Practice*
- fostering a culture of collaboration with interdisciplinary teams to support student learning, resiliency, self-advocacy and transitions
- fostering partnerships with local, regional, national and global organizations related to science education.

I. Research, Professional Learning and the Scholarship of Pedagogy

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

- promoting scholarship and research in metacognition that support student learning and well-being
- fostering a reflective culture that critically investigates past, current and evolving practices in Science
- promoting a culture of shared leadership that critically and collaboratively explores professional practice through ongoing inquiry into theory and pedagogy/andragogy
- fostering critical dialogue and inquiry regarding transformational professional learning through research, scholarship and leadership
- fostering and promoting engagement pedagogies that work best for various learning outcomes (for example, Peer Instruction, Guided Inquiry, Just-in-Time Teaching, interactive boards, First Steps Process and ConcepTests)
- fostering the critical and collaborative exploration of research and scholarship in problem solving and inquiry-based pedagogies that support deep understanding in the sciences

- promoting factors that relate to ethical responsibility in research and scholarship (for example, morality, cultural mores, stakeholder positions, contrary data, intellectual honesty, pseudoscience and transparency)
- cultivating a culture of critical pedagogy that critically utilizes research and the scholarship of pedagogy/andragogy to refine and advance teaching practice
- facilitating a culture of collaborative engagement in which research and the scholarship of critical pedagogy/andragogy are employed to advance communities of practice
- collaboratively fostering a culture of knowledge-creation and mobilization to enhance professional practice and leadership
- fostering a culture that critically explores ethical responsibilities in research and scholarship that honour and embody the *Ethical Standards for the Teaching Profession*.

6. Instructional Design and Practices in the Additional Qualification Course: Honour Specialist Science

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.

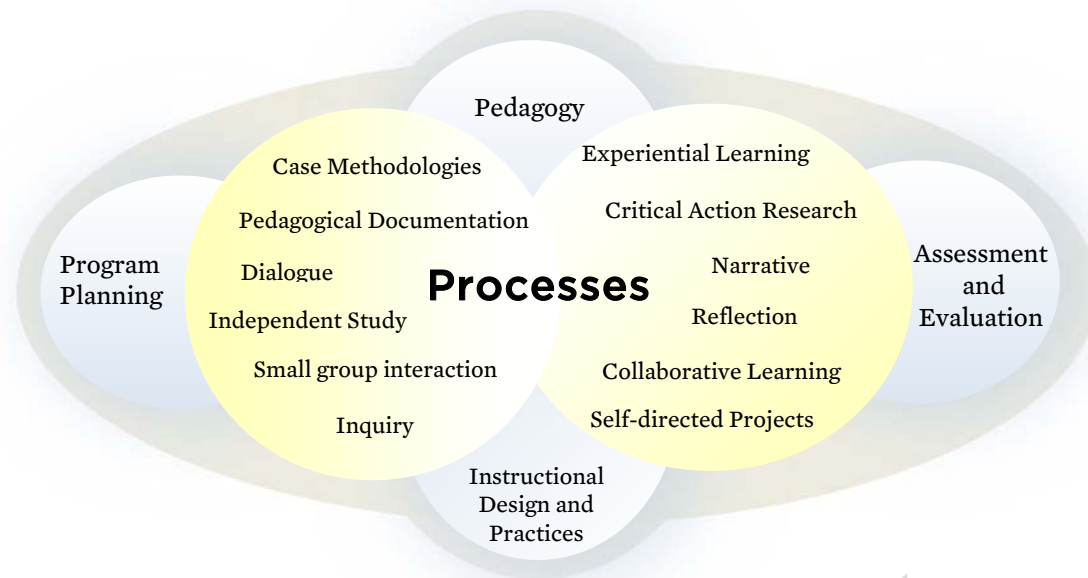


Figure 5: Instructional Processes

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, 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 *Honour Specialist Science* 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 *Honour Specialist Science*. 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>c) Pedagogical Documentation: assembling visible records (for example, written notes, photos, videos, audio recordings, artefacts and records of students' learning) that enable teachers, parents/guardians/families 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</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> <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>
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<p>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>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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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.

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

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.

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.