Overview

The Graduate Program in Critical and Creative Thinking (CCT) is a unique interdisciplinary program that provides its students with knowledge, tools, experience, and support so they can become constructive, reflective agents of change in education, work, social movements, science, and creative arts.

Critical thinking, creative thinking, and reflective practice are valued, of course, in all fields. In critical thinking we seek to scrutinize the assumptions, reasoning, and evidence brought to bear on an issue—by others and by oneself; such scrutiny is enhanced by placing ideas and practices in tension with alternatives. Key functions of creative thinking include generating alternative ideas, practices, and solutions that are unique and effective, and exploring ways to confront complex, messy, ambiguous problems, make new connections, and see how things could be otherwise. In reflective practice we take risks and experiment in putting ideas into practice, then take stock of the outcomes and revise our approaches accordingly.

The rationale for Masters and Certificate programs of study in CCT is that an explicit and sustained focus on learning and applying ideas and tools in critical thinking, creative thinking, and reflective practice allows students involved in a wide array of professions and endeavors to develop clarity and confidence to make deep changes in their learning, teaching, work, activism, research, and artistry. By the time CCT students finish their studies they are prepared to teach or guide others in ways that often depart markedly from their previous schooling and experience.

In these processes of transformation and transfer, CCT students have to select and adapt the ideas and tools presented by faculty with diverse disciplinary and interdisciplinary concerns. Although each CCT course is self-contained and is open to students from other graduate programs, students matriculated in the Program benefit from extended relationships with core CCT faculty and fellow students that support their process-learning—experimenting and taking risks in applying what they are learning, reflecting on the outcomes and revising accordingly, and building up a set of tools, practices, and perspectives that work in their specific professional or personal endeavors.

Content of Studies

Traditionally, the foundational knowledge emphasized in Critical and Creative Thinking has included psychological studies of the scope, limits, and techniques of critical and creative thought, information processing, and conceptual learning in children and young adults; philosophical studies of reasoning, argument, logical thinking, valuing, and judging; and work with cognitive structures and metacognitive techniques for stimulating creativity and critical thought. In the CCT Program this knowledge base is expanded through elective courses that take students into areas of specialization and through required courses in research, implementation, evaluation, and communication that introduce a range of tools for students’ own personal and professional development and for helping others develop equivalent processes. In recent years required and elective CCT courses have delved further into inter- and intra-personal dimensions of critical and creative thinking and reflective practice, involving empathy, listening, dialogue, and facilitation of other group processes. An interest in contributing to constructive social change has also led CCT faculty and students to address anti-racist and multicultural education and to promote the involvement of teachers and other citizens in debates about science in its social context.

Like the students in the Program, CCT faculty members are engaged in ongoing personal and professional development, which builds on, but
extends some distance from, their original disciplines of education, philosophy, psychology, mathematics, and the life sciences. Indeed, faculty members value teaching in CCT as an opportunity for innovation and process-learning—ideas incubated with input from the diverse practitioner-students of CCT can then be brought back into the faculty's home disciplines and undergraduate teaching. In turn, students' experience of the faculty as reflective practitioners in their own work is an essential part of the content of CCT studies.

**Students and intended impact of studies**

The CCT Program appeals to students looking for professional and personal development who are interested in learning from and with others of diverse backgrounds and interests. Many are mid-career educators: teachers and college professors, curriculum specialists, teacher educators, museum educators, or school administrators. Others are policy makers or personnel trainers in government, corporate, or non-profit settings. Some are artists, musicians, or writers.

Through course projects, independent studies, pre-capstone research courses, and the capstone synthesis projects, CCT students explore issues they have not had much chance to address before and translate what they learn into strategies, materials, and interventions for use in diverse educational, professional, and social settings. Graduates leave CCT well equipped for ongoing learning, addressing the needs of their schools, workplaces, and communities, adapting and contributing to social changes, and collaborating with others to these ends.

**Programs of study**

Most students in CCT seek a Master of Arts (MA) degree (10 courses/30 credits), but others study for a Graduate Certificate (5 courses/15 credits). CCT courses also allow students from other graduate programs to fulfill requirements for courses in critical and creative thinking and in teaching in the different subject areas, especially in mathematics and science. In particular, Teacher Education students may, with the permission of their advisor, substitute one or more approved courses from the CCT Program to fulfill their requirements.

With prior permission of the CCT Program director, up to two upper level undergraduate courses may be taken where appropriate as electives within a specialty area. The elective courses offered specifically address four areas in which students apply critical and creative thinking skills:

- Literature and Arts
- Mathematics, Science, and Technology, which includes sub-specialties in Science in Society, and Environment, Science, and Society
- Moral Education and Ethical Issues
- Workplace and Organizational Change

Additional areas of specialization can be constructed through cooperation with other UMass Boston graduate programs, such as Instructional Design, Special Education, Educational Administration, and Dispute Resolution.

Final required courses: A practicum course and an evaluation seminar in which critical and creative thinking interventions are developed, implemented, evaluated, and modified (6 credits). These pre-capstone courses lead to a supervised capstone experience comprising either a synthesis project or a thesis (3 credits).

A. The Synthesis Project:

Students choosing this capstone experience take CCT 694 (Synthesis of Theory and Practice), a seminar through which participants review and reflect on the integration into their professional lives of critical and creative thinking skills and strategies. It offers each participant the opportunity to demonstrate mastery of competencies and skills appropriate and relevant to his/her discipline. For each student, this demonstration has two parts: a written essay and an oral presentation.

The synthesis project essay follows the Office of Graduate Studies and Research Guidelines for the Preparation of Theses & Dissertations, and is expected to incorporate an appropriate theoretical framework and references to relevant
Students seeking the certificate take a total of five courses (15 credits): a sequence of two core courses, CRCRTH 601 and 602 (Critical Thinking and Creative Thinking), and three other courses. Customarily, these include either PHIL 501 (Foundations of Philosophical Thought) or PSYCH 650 (Advanced Cognitive Psychology), an elective course, and CRCRTH 698 (Practicum: Processes of Research and Engagement). Alternatively, students may, after consultation with their faculty advisor and with the approval of the Program Director, take up to three electives in one specialty area in addition to CRCRTH 601 and 602. Each certificate student also gives an exit performance, usually as part of CRCRTH 698, that demonstrates competence in implementing critical and creative thinking. This is reviewed and evaluated by a faculty committee.

Special Opportunities and Resources

The CCT Program and the CCT Forum, a club run by graduate students,
organize regular presentations by students, faculty, and graduates, which are open to the wider University community. In these settings students can receive support from their peers and from graduates who can provide mentoring, information on employment opportunities, and access to new directions in putting CCT into practice. The CCT Community Directory also facilitates exchange among current and past CCT students. Outside the regular academic year, CCT hosts workshops and other activities designed to promote outreach beyond the University. Information is available from the CCT website at http://www.cct.umb.edu and through an email listserv.

The CCT Handbook provides additional information about joining and moving through the CCT program, and about the wider CCT community. This handbook can be viewed on the CCT website or downloaded as a PDF file.

Courses

CRCRTH 601
Critical Thinking
This course explores issues about the nature and techniques of critical thought, viewed as a way to establish a reliable basis for our claims, beliefs, and attitudes about the world. We explore multiple perspectives, placing established facts, theories, and practices in tension with alternatives to see how things could be otherwise. Views about observation and interpretation, reasoning and inference, valuing and judging, and the production of knowledge in its social context are considered. Special attention is given to translating what is learned into strategies, materials, and interventions for use in students' own educational and professional settings.

3 Lect Hrs, 3 Credits
Mr Millman, Ms Farrell Smith

CRCRTH 602
Creative Thinking
This course seeks to increase the participants’ understanding of creativity, to improve their creative problem-solving skills, and to enhance their ability to promote these skills in others, in a variety of educational settings. Students participate in activities designed to help develop their own creativity, and discuss the creative process from various theoretical perspectives. Readings are on such topics as creative individuals, environments that tend to enhance creative functioning, and related educational issues. Discussions with artists, scientists, and others particularly involved in the creative process focus on their techniques, and on ways in which creativity can be nurtured.

3 Lect Hrs, 3 Credits
Ms Greenwald, Mr Schwartz

CRCRTH 611
Seminar in Critical Thinking
This course involves research on and discussion of important issues of current concern about critical thinking. Issues include critical thinking; logic and knowledge; critical thinking about facts and about values; knowledge in its social context; teaching to be critical; and evaluating critical thinking skills. The course addresses these issues through cases of topical interest.

Prerequisite: CRCRTH 601 or permission of instructor.
3 Lect Hrs, 3 Credits
Ms Greenwald, Mr Schwartz

CRCRTH 612
Seminar in Creativity
This course involves research on and discussion of important issues of current concern in the field of creativity. The seminar analyzes writings on the creative person, the creative process, and the development of creative performance in both art and science. It draws on materials from a variety of sources including biography, intellectual histories, psychological studies and educational research. Topics include perspectives on the creative process; from logical extension to intuitive leap; distinguishing scientific and artistic creativity; the person; the role of insight; demythologizing creativity; social context and creative productivity; evaluating creativity; educating for creativity.

Prerequisite: CRCRTH 602 or permission of instructor.
3 Lect Hrs, 3 Credits
Ms Greenwald

CRCRTH 618
Creative Thinking, Collaboration and Organizational Change
Through interactive, experiential sessions and structured assignments, students learn critical and creative approaches to working in organizations. Skills addressed include: communication and team-building; facilitation of participation and collaboration in groups; promotion of learning from a diversity of perspectives; problem-finding and solving; and reflective practice. Students apply these skills to situations that arise in business, schools, social change groups, and other organizations with a view to taking initiative and generating constructive change.

3 Lect Hrs. 3 Credits

CRCRTH 616
Dialogue Processes
Genuine dialogue provides a creative space in which may emerge entirely new ways of thinking, acting, and relating to others. At the heart of such dialogue is holding respect for oneself, for one another, and for a commonly created pool of meaning. Course participants learn and experience approaches to listening and dialogue, derived from Buber, Bohm, Isaacs, Jackins, Weissglass, and others, that allow us to become more aware of the underlying beliefs, assumptions, and emotions that limit our thinking and our responses to the world. Discussions explore applications of dialogue processes in educational, organizational, social and personal change.

3 Lect Hrs, 3 Credits
Mr Bradford

CRCRCH 619
Biomedical Ethics
This course develops students’ critical thinking about dilemmas in medicine and health care policy, such as those
that arise around allocation of scarce resources, criteria for organ transplants, informed consent, experimentation on human subjects, AIDS research, embryo research, and selective termination of pregnancy, euthanasia, and physician assisted suicide. Through such cases the course introduces methods in moral reasoning including principle-based reasoning, rights-based reasoning, decision-making under uncertainty, and utilitarianism in classic and contemporary normative reasoning.

3 Lect Hrs., 3 Credits
Ms Farrell Smith

CRCRTH 620
Moral Education
This course involves a comprehensive analysis of the basic issues in moral education from an interdisciplinary perspective. Philosophical studies of the nature of morality and the moral life are integrated with psychological studies of moral development and the ethical context of human motivation and brought to bear on issues in teaching morality, especially in elementary and secondary schools, in a democratic society. Topics include rationality, emotion, and motivation in moral action; the moral life and the aims of moral education; the moral development of children; moral education versus indoctrination; socialization; the “hidden curriculum”; and moral education. Throughout this course theoretical insights are applied to an examination of materials, programs, and practices in moral education, both in schools and in the wider community.

Prerequisites: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits

CRCRTH 627
Issues and Controversies in Antiracist and Multicultural Education
This course explores two related forms of education—antiracist education and multicultural education—approaching them as issues in moral and value education and exploring controversies in the theories and practices of antiracist and multicultural education. The course deals with both practical and theoretical issues, but concentrates more on theory. Specific topics include racism, race, and school achievement; ethnic identity and self-esteem; Afrocentrism; religious pluralism; multiculturalism as a unifying or divisive force.

Prerequisites: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits
Mr Blum

CRCRTH 630
Criticism and Creativity in Literature and the Arts
Expression and evaluation, freedom and discipline, creative production and its critique—how do these dualities relate to visual and verbal imagination as they are demonstrated in literature and the arts? Specific strategies for eliciting imaginative work in these areas are demonstrated, as are specific strategies for evaluating imaginative works. Finally, this course focuses on ways of helping others (including children) to develop these skills and effectively utilize these strategies.

Prerequisites: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits

CRCRTH 640
Environment, Science and Society: Critical Thinking
Through current and historical cases, this course explores the diverse influences that shape environmental science and politics and their pedagogical, professional, social, and moral implications for educators, environmental professionals, and concerned citizens.

Prerequisites: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits
Mr Millman, Mr Taylor

CRCRTH 645
Biology in Society: Critical Thinking
Current and historical cases are used to examine the political, ethical, and other social dimensions of the life sciences. Close examination of developments in the life sciences can lead to questions about the social influences shaping scientists’ work or its application. This, in turn, can lead to new questions and alternative approaches for educators, biologists, health professionals, and concerned citizens.

Prerequisite: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits
Mr Millman, Mr Taylor

CRCRTH 649
Science, Technology and Public Policy
Although relatively few Americans have backgrounds in science or engineering, they are increasingly confronted with issues that are technically complex. This course explores the resulting tensions and asks how the needs for scientific expertise and democratic control of science and technology are reconciled. The first half of the course traces the historical development of American science policy and situates this development comparatively. The second half focuses on contemporary controversies, including those over the nature of university-industry relations, patent policy, and the cases of expert/lay disagreements over risk.

3 Lect Hrs, 3 Credits
Mr Taylor

CRCRTH 650
Mathematics Thinking Skills
This course explores several types of mathematical thinking in the context of number theory, algebra, geometry, and introductory calculus, and relates them to critical and creative thinking skills. Developmental and experiential factors in learning and teaching mathematics are considered, as well as techniques for determining a learner’s mathematical abilities and learning styles. Readings, discussion, research, and problem-solving are used to provide a historical context, and to suggest connections with other disciplines. Individual and small-group projects are adapted to student interests. No formal mathematical background beyond high school algebra and geometry is required.

Prerequisite: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits
CRCRTH 652
Children and Science
This course explores the ways children think about their natural and social world and how this affects their learning of science. It is particularly concerned with identifying and describing the organized conceptual frameworks children have prior to instruction (which typically are different from the scientists' conceptualizations) and with understanding the general processes by which conceptual frameworks can be changed. One important question concerns the ways in which children are fundamentally different learners and thinkers than adults and the ways in which they are fundamentally similar.
3 Lect Hrs, 3 Credits
Ms Smith

CRCRTH 655
Metacognition
This course considers various aspects of metacognition and how they influence behavior in children and adults. Topics include the individual's knowledge of his or her own cognition, self-awareness, the monitoring of conscious thought processes, inferences about unconscious thought processes, metacognition as a decision process, metacognitive strategies, the development of metacognition, and metacognition as a source of individual differences in children.
Prerequisite: PSYCH 350 or 550.
3 Lect Hrs, 3 Credits
Mr Schwartz

CRCRTH 670
Thinking, Learning, and Computers
This course considers the consequences of using computers to aid our thinking, learning, communication and action; in classrooms, organizations, and social interactions. Class activities acquaint students with specific computer-based tools, the ideas and research behind them, and themes for critical thinking about these ideas and tools.
Prerequisites: CRCRTH 601, or permission of instructor.
3 Lect Hrs, 3 Credits
Mr Taylor

CRCRTH 693
Seminar on Evaluation of Educational Change
This course covers techniques for and critical thinking about the evaluation of changes in educational practices and policies in schools, organizations, and informal contexts. Topics include quantitative and qualitative methods for design and analysis; participatory design of practices and policies; institutional learning; the wider reception or discounting of evaluations; and selected case studies, including those arising from semester-long student projects.
Prerequisites: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits
Mr Taylor

CRCRTH 694
Synthesis of Theory and Practice Seminar
This seminar provides participants with an opportunity to review and reflect on their work in the program and its impact on their current and future professional and personal lives, through a final project that demonstrates knowledge and integration of critical and creative thinking skills, processes, and strategies. To facilitate the synthesis of ideas and the identification of a final project option, the seminar begins with group experiences. Students choosing the same final project option meet in small groups weekly to present their plans and progress notes for support and critique. A three-page final project description is presented early in the course, and all projects are presented during the last four weeks.
Prerequisites: All completed course work and permission of program coordinator.
3 Lect Hrs, 3 Credits
Ms Greenwald, Mr Taylor

CRCRTH 696
Independent Study
This course involves the comprehensive study of a particular topic or area of literature determined by the student's need; the study is pursued under the guidance, and subject to the examination, of the instructor. An application or outline of study should be submitted to the instructor by the end of the semester previous to that in which this course is to be taken.
1-6 Credits

CRCRTH 697
Special Topics in Critical and Creative Thinking
This advanced course offers intensive study of selected topics in the field of critical and creative thinking. Course content and credit vary according to the topic and will be announced during the advance registration period.
3 Lect Hrs, 1-6 Credits

CRCRTH 698
Practicum: Processes of Research and Engagement
In this course students identify issues in educational or other professional settings on which to focus their critical and creative thinking skills. Each student works through the different stages of research and action – from defining a manageable project to communicating findings and plans for further work. Supervision is provided when the student's research centers on new teaching practices, workshops in the community, or other kinds of engagement as an intern or volunteer. The classes run as workshops, in which student are introduced to and then practice using tools for research, writing, communicating, and supporting the work of others.
Prerequisites: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits
Mr Taylor

CRCRTH 699
Thesis Research
Students should sign up for this course after they have completed eight or nine courses and should meet with the director of the program to arrange for an appropriate thesis committee (the student's advisor and two committee members). The three person committee meets twice with the student, first to approve the thesis proposal and second, to approve the final draft of the thesis.
Each student meets regularly with the thesis adviser until the thesis is completed, but needs to sign up only once for this course. To provide additional support, group seminars may be offered so that students, past graduates, and faculty can come together to discuss the thesis requirements and share ideas about the process of thesis writing. Hrs to be arranged, 3 Credits

Departmental Courses (Required)

PHIL 501
Foundations of Philosophical Thought
By discussing four or five traditional substantive problems in philosophy, such as, morality, the nature of knowledge, freedom of the will, the nature of mind, and social organization, the course attempts to derive a common approach that philosophers bring to these problems when developing their own solutions and criticizing the solutions of other philosophers. It also considers some of the ways that substantive issues and debates in philosophy relate to contemporary non-philosophical issues in our society, and can be introduced into a broad range of educational environments outside standard philosophy courses.
Prerequisites: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits
Ms Farrell Smith, Mr Millman

PSYCH 650
Cognitive Psychology
This course gives a survey of the field of cognitive psychology from an information-processing viewpoint. This course considers how people encode, organize, transform, and output information. Emphasis is given to such topics as concept formation, problem-solving, and creative thinking.
Prerequisites: CRCRTH 601 and 602, or permission of instructor.
3 Lect Hrs, 3 Credits
Mr Schwartz, Ms Smith