Course Purpose:

*Creative and Critical Thinking* is a course designed to promote more critical thinking in college courses--in study, teaching, learning, and testing.

Course Objectives:

1. Define critical thinking.

2. Differentiate critical thinking from other educational goals, methods, and pedagogies. Understand why critical thinking is an increasingly important educational goal.

3. Appreciate the importance of applying critical thinking goals and strategies to all elements of the course, so that they support one another.

4. Examine one’s own courses and consider the incorporation of additional critical thinking elements.
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Defining Critical Thinking

Questions for our consideration:

What *is* critical thinking?

What is it *not*?

Does it overlap with other educational goals?

Does it vary by discipline?

Is it poorly defined?

Is it important?

Do all educators support it?

What’s in it for me?
What *is* critical thinking?

**analytical and logical thinking**

*the examination of* accuracy, arguments, calculations, causes, completeness, concepts, consequences, consistency, costs and benefits, decisions, fairness, implications, information, inferences, logic, perceptions, plausibility, precision, processes, purposes, relationships, relevance, significance, quality and quantity, questions, views, etc.

**skepticism and awareness**

*of* assumptions, authority, beliefs, bias, common wisdom, distortion, egocentrism, experts, misinformation, motivations, prejudice, self-deception, slogans, sources, tradition

**proper use of the scientific process***

observation/identification/research
questioning/theorizing/induction
hypothesis/prediction
operationalization
testing/experimentation
evaluation (theory disproved or “law”)

* there are many variants of these terms

**application of information to solve problems**

the use of information, not simple recall
THE SCIENTIFIC PROCESS

Observation/Identification/Research

Hypothesis/Prediction

Experimentation/Testing

Control Group Experimental Group

(repeat revise)

Supports Hypothesis Doesn’t Support Hypothesis

Scientific/Natural Law
CRITICAL THINKING: HOW SOME AUTHORS DEFINE IT

"Critical thinking, as we define it here, means reviewing the ideas we have produced,
making a tentative decision about what action will best solve the problem or what belief
about the issue is most reasonable, and then evaluating or refining that solution or
belief."

Thought*, p. 149.

[Critical thinking is] . . . "an investigation whose purpose is to explore a situation,
phenomenon, question or problem [in order] to arrive at a hypothesis or conclusion that
integrates all available information and that can therefore be convincingly justified. In
critical thinking, all assumptions are open to question, divergent views are aggressively
sought, and the inquiry is not biased in favor of a particular outcome."

Possibilities*, p. 2.

"... critical thinking appears to stress the individual's ability to interpret, evaluate, and
make informed judgments about the adequacy of arguments, data, and conclusions."

Findings and Insights from Twenty Years of Research*, p. 118.

"... most formal definitions of critical thinking include the intentional application of rational,
higher-order thinking skills such as analysis, synthesis, problem-recognition and
problem-solving, inference, and evaluation."


"Critical thinking is not simply being highly critical of everyone else's thinking but your
own."

"Critical thinking" is being promoted by instructors and school administrators across the country. Its proponents use the term to emphasize what they believe to be a superior and more relevant style of teaching and learning--one in which the focus of education is the development of reasoning and judgment skills. They argue that today's global, technologically dependent, constantly-changing economy has placed new demands on educators and their students. No longer does the American economy need massive numbers of relatively unskilled manufacturing workers to fill assembly lines. The United States is a "post-industrial" economy--one that is increasingly specializing in higher-paying information and technology fields (genetics, computer science, systems analysis, medicine, engineering, finance, education, entertainment, resource management, consulting, etc.)

It is difficult to precisely define critical thinking because it has many specific interpretations, probably as many as there are different academic disciplines. It is probably easier to explain what it is not. It is not the passive absorption of the course material, without the questioning of assumptions and unproved claims regarding it. It is not about being able to associate particular terms with familiar-sounding words from a lecture or by remembering distinctive words from a textbook definition of a key term. It is not the kind of education that requires memorization of descriptive information. It does not highly value simple recall of data. It does not worship the collection of information for its own sake, if that knowledge is not used and applied to the real world.

No matter how proficient a student is at memorization, he or she will never be able to compete with an obsolete computer, and the computer is far cheaper to maintain than an employee. Employers therefore are searching for employees that can do what a computer cannot do--think. Unfortunately, our schools have been slow to respond, still turning out graduates that are ready for the 1950s industrial economy. American grade schools often are less rigorous than those of our trade competitors, and demand little critical thinking from students. By the time students reach college, many are poorly prepared for the task. This, combined with the larger-than-ever numbers of students entering higher education today, has made the problem even more challenging for community colleges such as HCCS.

Nevertheless, it is a challenge that committed educators and serious students must meet. Whether a job or further study at a university awaits you after HCCS, the most important thing you can acquire in our classes is an enhanced ability to think critically. If you want to have an exciting and well-paying career in today's economy, you must recognize that your education, in some form or another, will never end. Therefore, you must first learn how to learn; everything else is secondary. Data changes, and information must be updated, but every reasoning skill you develop will reward you forever.
By no means does this mean that we instructors consider it unimportant that you know that every state gets two U.S. senators, or that the U.S. government spent $2.5 trillion in 2005. Facts are important, and ignorance of fundamental information is crippling. However, consider for a moment something about which you personally know a lot of detailed information. Is this the case because you set down at a table and memorized it? Or is it because you have used or analyzed this information extensively? It is much easier to remember that about which you have thought deeply. Further, unless you have acquired critical thinking skills you may not be able to distinguish between accurate information and disinformation. The "truth" and the "simple facts" are not always so easily identified. Thus, the study of raw facts must be married with the study of critical thinking.

As noted above, critical thinking may have different specific demands for individual academic fields. Here are some examples of the kind of teaching goals our department tries to promote:

- Recognizing and evaluating sources of information
- Organizing, classifying, and prioritizing information
- Dividing concepts into individual parts and combining parts into a cohesive unit
- Comparing and contrasting related concepts and institutions
- Fusing isolated ideas into more sophisticated concepts
- Formulating relationships between concepts or things
- Identifying examples, recognizing symbolism, and making analogies
- Appreciating perspectives, motivations, and roles of various institutional actors
- Questioning core assumptions and unspoken understandings
- Weighting the significance of phenomena
- Analyzing logical argument and chains of thought
- Using and evaluating evidence to defend or attack a proposition
- Distinguishing between cause and effect
- Distinguishing between relevant factors and irrelevant factors
- Explaining unexpected phenomena and predicting events and results
- Testing hypotheses and choosing between alternatives
- Applying information and principles to the real world
- Measuring the short-term against the long-term and the costs against the benefits
- Creating and evaluating reforms and solutions to problems
- Expressing one's ideas in persuasive writing

In conclusion, critical thinking is about the use of information rather than its recall. It is far more interesting, more relevant to your needs, and arguably even easier than is memorization. We all have the ability to think critically, and we all use these methods daily in our personal lives to make decisions.

From Mark Tiller's HCC Learning Web Page at:
http://learning.nwc.hccs.edu/members/mark.tiller/critical-thinking/
What is *not* critical thinking?

**memorization**
- Is memorization an important skill?
- Is it as important as it once was?

**negativity, cynicism**
- “Critical” does not mean negative.
- Critical thinkers must have open minds.
- Skepticism is healthy and can be productive.
- Cynicism is often destructive.

**faith, trust, beliefs**
- in “experts,” authorities, government, slogans, symbols, religion, ideology, family, nation, etc.

**superstition, myths, folk logic, legends**
*(see next page)*
OUR SUPERSTITIOUS WORLD

Do any of these meet the demands of the scientific process? Why are we so fascinated by these things?

**MONSTERS**
dragons, sea serpents (esp. Loch Ness)
Bigfoot, Yeti, the Abominable Snowman
isolated remaining dinosaurs in jungles
swamp creatures, bunyips

ghosts, zombies
vampires, werewolves
witches, demons
cattle mutilators, chupacabra

**LEGENDS**
the fountain of youth
the Bermuda Triangle
lost cities, especially Atlantis
the Flat Earth
unlucky omens/black cats/numbers (e.g., 13)/events
urban legends

fairies, mermaids, unicorns
gremlins, elves, leprechauns
haunted houses
the evil eye, curses
lucky charms/talismans/amulets

**MAGIC, HOAXES**
mind-reading, telepathy, remote viewing
telekinesis, object manipulation (e.g., spoon bending)
seances, psychic rapping, channeling
invulnerability potions
dream forecasting
signs left by extraterrestrial aliens (e.g., crop circles)
glossolalia (speaking in tongues)

levitation
dowsing rods
psychic surgery
pyramid/Ponzi schemes, chain letters
spontaneous human combustion
perpetual motion machines
crystal balls

**HALLUCINATIONS, WISHFUL THINKING**
facial reprocessing (on the moon/Mars/food/other objects)
sel-delusionary games (e.g., Ouija boards)
fortune-telling, palmistry, tarot, tea leaves
out-of-body experiences, near-death visions
UFO contacts and extraterrestrial abductions
bleeding/crying statues and paintings
reincarnation
magnetic therapy, copper therapy, etc.
vooodoo

Kirlian head auras
extra-sensory perception
precognition prophesy (e.g., Nostradamus)
repressed memory recovery
bodily possessions
glorified coincidence, selective perception
firewalking, pain endurance tricks
anti-radiation helmets (head shield)

**PSEUDOSCIENCES**
astrology, horoscopes
biorythm analysis
New Age crystalogy
handwriting analysis
medical quackery and “cures”
palmistry
phrenology
pyramidology

alchemy
breatharianism
dianetics
iridagnosis/iridology
numerology
parapsychology
plant psychology
racial superiority, melaninism
Differentiating Critical Thinking from Other Goals:

Does CT overlap with other purported educational goals?

student engagement

student-centered learning

group work and competitive learning

normative/emotional engagement

the Socratic approach, active learning
Discussion Questions, continued:

Does critical thinking vary by discipline?

Is critical thinking poorly defined?

Is critical thinking important?

Do all educators support critical thinking?

What’s in critical thinking for me?
Objectives

Course Revision

structure of course, inc. homework, preparation, etc.

classroom teaching and learning

classroom evaluation

How Much?

introduce elements of CT into course

sharpen CT existing in course

supplement, expand existing CT in course
Pre-Test  Examine your courses:

Do they promote critical thinking? Consider each of the following components, and briefly respond to each.

Structure

Does your syllabus and planning create an atmosphere of critical thinking, and encourage the kind of traits that students need? Do the assignments and evaluation methods better equip students to be able to think critically? Are the grading components properly weighted in favor of what is most important? Are your goals clear to students and do you have realistic strategies to meet them? Have you weighed the tradeoff between order and efficient structure versus innovativeness and creativity?

*Your response:*

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Homework/Reading Assignments

Have you given up the battle? Or, do you have an effective means of keeping students caught up and regularly studying, so that they are prepared for class each day, and so that they better understand lectures and class activities? Does this preparation better equip them to apply what they have learned to problem-solving and analysis?

*Your response:* ____________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________
Frequent Classroom Graded Work

Do you use pop quizzes or other methods of requiring students to be prepared for class each day? Do these means provide effective incentives to your students to be prepared, by rewarding those who work hard and punishing those who do not?

Your response: __________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
Teaching

Are you using the class to repeat what is already in the texts, or are you using the text to prepare students for your lectures and classroom activities? Are you training students with the kind of skills and analytical abilities that they need to think critically, or do you simply expect them to acquire them somehow? Are you modeling the kind of responsible behavior, preparedness, optimism, dependability, and intellectual traits that you wish your students to have?

*Your response: ____________________________________________
Papers/Projects/Presentations

Are these components encouraging creativity and critical thinking, or have you assigned them because they are “expected”? Are these projects susceptible to plagiarism, and have you minimized this threat as completely as is possible?

*Your response: ________________________________
Tests

Do you have to curve your tests, or do you have a normal grade distribution that discriminates the best from the worst? Do your tests favor those who memorize and can recall terms and data--or those who understand and can apply the material? (Two common mistakes are: (1) teach/model critical thinking, then test data retrieval; (2) lecture on data, then expect students to think critically on the test.) Do your tests integrate both at-home study and in-class teaching to achieve a higher level of critical thinking? Are you practicing in class the kind of skills you expect your students to use on your tests?

Your response: __________________________________________

________________________________________

________________________________________

________________________________________
Critical thinking test questions educate students by requiring them to:

- Recognize and evaluate sources of information
- Organize, classify, and prioritize information
- Divide concepts into individual parts and combine parts into a cohesive unit
- Compare and contrast related concepts and institutions
- Fuse isolated ideas into more sophisticated concepts
- Formulate relationships between concepts or things
- Identify examples, recognize symbolism, and make analogies
- Appreciate perspectives, motivations, and roles of various institutional actors
- Question core assumptions and unspoken understandings
- Weight the significance of phenomena
- Analyze logical argument and chains of thought
- Use and evaluate evidence to defend or attack a proposition
- Distinguish between cause and effect
- Distinguish between relevant factors and irrelevant factors
- Explain unexpected phenomena and predict events and results
- Test hypotheses and choose between alternatives
- Apply information and principles to the real world
- Measure the short-term against the long-term and the costs against the benefits
- Create and evaluate reforms and solutions to problems
- Express ideas in persuasive writing

For a brief essay on critical thinking, see: [http://nwc.hccs.edu/govt/resources/critical.html](http://nwc.hccs.edu/govt/resources/critical.html)

Critical thinking questions may use written responses, either in short-answer form or essay form. However, written answers do not necessarily require analysis and problem-solving. An essay question may require that the students write out memorized information just as well as it might ask the student to offer a critical analysis. Similarly, multiple choice may be critical thinking or not, depending upon the question. Here are some examples of the difference:

<table>
<thead>
<tr>
<th>NON-CRITICAL THINKING MULTIPLE CHOICE QUESTION</th>
<th>CRITICAL THINKING MULTIPLE CHOICE QUESTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which of the following is the best description of Theory X?</td>
<td>Given the accuracy of the Theory X, which of the following would be likely? -OR- Which of the following investigations is a good test of Theory X?</td>
</tr>
<tr>
<td>Which of the following is NOT a bias in the broadcast media’s selection of newsworthiness?</td>
<td>Which of the following news stories would be most likely to lead the evening news?</td>
</tr>
<tr>
<td>Which of the following is NOT a precedent concerning police search and seizure?</td>
<td>In which of the following scenarios did Officer Bob violate the law with regard to search and seizure?</td>
</tr>
<tr>
<td>Ideology is:</td>
<td>Which of the following statements is LEAST likely to have been spoken by an ideologue?</td>
</tr>
<tr>
<td>On what subject did Mr. X manipulate his audience?</td>
<td>What lesson about rhetoric and logic is illustrated by the manipulative speech of Mr. X?</td>
</tr>
<tr>
<td>What positions does Mr. X hold on issues Y and Z?</td>
<td>What is inconsistency reflected in Mr. X’s positions on Z and Y?</td>
</tr>
<tr>
<td>Which of the following descriptions best distinguishes the independent variable and the dependent variable?</td>
<td>In which of the following analyses are the independent and dependent variables confused?</td>
</tr>
<tr>
<td>X tends to: -and- Which of the following is a criticism of Y?</td>
<td>-combined into one question- Given X, which reform of Y is most likely to succeed?</td>
</tr>
<tr>
<td>Which of the following has been proven with reliable and valid evidence?</td>
<td>Which of the following provides reliable and valid evidence for the existence of X?</td>
</tr>
<tr>
<td>Which of the following is an accurate description of the campaign contributions strategy that Political Action Committees use to advance their goals?</td>
<td>Judging from what we studied about Political Action Committee’s strategies, PAC X would be most likely to offer which of the following contributions to the specified candidate?</td>
</tr>
<tr>
<td>Which of the following is a common flaw made in survey polling questions?</td>
<td>Which of the following versions of a hypothetical polling question is not flawed?</td>
</tr>
<tr>
<td>Which of the following is the most important X?</td>
<td>Which of the following is the most credible explanation for why Z is the most important X?</td>
</tr>
<tr>
<td>Which of the following reforms have been proposed to deal with Policy X?</td>
<td>Which of the following individuals would most benefit from Reform Z?</td>
</tr>
<tr>
<td>Which of the following is an example of how statistics can mislead the reader?</td>
<td>Which of the following statistics is misleading?</td>
</tr>
<tr>
<td>Which of the following definitions best describes the principle of X?</td>
<td>Which of the following hypothetical events would challenge the logic (act as a refutation) of principle X?</td>
</tr>
</tbody>
</table>
Other

Have you thought originally about the components of your course? Is there something missing from your class? Do your learning goals include something that is poorly suited to traditional course components?

*Your response:* ____________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Critical Thinking Tools

FALLACIES (in Handout)
1. appeal to force
2. ad hominem, abusive/circumstantial
3. appeal to ignorance
4. appeal to pity
5. appeal to the people
6. appeal to authority
7. accident, converse accident
8. begging the question (circular reasoning)
9. false cause
10. complex question
11. irrelevant conclusion

SOME ADDITIONAL RELATED FALLACIES
1. appeal to fear, argument from adverse circumstances
2. tu quoque (you’re another), poisoning the well
3. disproving the negative
4. appeal to emotion
5. appeal to the gallery
6. appeal to inexpert authority, appeal to tradition
7. statistics of small numbers, observational selection
8. assuming the answer, invincible ignorance
9. slippery slope
10. meaningless question
11. straw man, excluded middle (false alternative)

RHETORIC AND PROPAGANDA
1. beware of passionate appeals
2. because something is published (or broadcast, or on the Internet, etc.) does not make it valid or accurate (consider the source's intellectual rigor)
3. analogies are useful, but beware misleading analogies (comparisons must be similar in significant ways—may be different in trivial ways)
4. beware of tacit assumptions behind adjectives and adverbs used in persuasive speech
5. beware of the manipulative use of terms that are not widely understood
6. beware of double-speak and invented terms that mask real meanings
7. guard against inconsistent standards of judgment in favored and disfavored ideas
8. every link in a chain of arguments must hold for the conclusion to be acceptable; therefore, avoid unnecessary complications in arguments

THE SCIENTIFIC METHOD
1. observation-->theory-->hypothesis-->operationalization-->experimentation
2. remember that results are only as valid as the research design
3. don't forget the difference between perception and reality
4. insist on a clear definition of terms before addressing the issue at hand
5. recognize the difference between hearsay and significant evidence
6. beware univariable explanations
7. consider alternative hypotheses and all sides of an argument
8. don't confuse independent and dependent variables
9. operational indicators must be free of bias
10. good experiments require a control group
11. experiments should be double-blind if possible
12. others should be able to duplicate the results of valid experiments
13. realize and accept that some degree of uncertainty is natural and unavoidable (remember chaos theory)
14. scientific laws are theories whose conclusions that have not yet been disproved

CALCULATIONS
1. remember that one case does not make a rule and general conditions often have exceptional cases
2. apply a cost-benefit analysis, being careful to include all costs and benefits
3. remember the margin of error, and the accuracy and reliability of your indicators
4. beware of statistical manipulations (% of what, exactly?)
5. question how far back one should go in compiling data that illustrate trends
6. examine correlations and graphs for validity

POLICY ANALYSIS
1. remember that common sense is common, but not always sensible
2. remember that public policy must be based on more than anecdotal evidence of individuals
3. take human nature into account when constructing solutions
4. "objective solutions" are rare; consider the author and ask whether he/she benefits
5. true understanding of a concept is difficult if it is not personalized; beware of judgments from a distance
6. question why reformers most often want to solve easy problems rather than more serious ones
7. public policy crises are never a problem before they occur (ignored dangers do not always disappear)

SELF-CRITICISM
1. be skeptical, not cynical; skepticism leads to questioning and analysis, cynicism is destructive
2. remember that your own biases, values, and experiences will color your conclusions
3. keep an open mind; don't leap to judgment
4. when making a decision, encourage criticism—or at least appoint a devil's advocate
5. avoid undue attachment to your original argument--real intellectuals are willing to change their views
6. be humble in your analyses; don't claim more than you can prove
Participatory Learning

Group Discussions:

(1) Prerequisites to CT?

Knowledge?

*Intellectual traits, such as* adventurousness, discipline, empathy, fair-mindedness, honesty, humility, inquisitiveness, integrity, judiciousness, knowledge-seeking, open-mindedness, organization, patience, tolerance, etc.

(2) Volunteers: Course Diagnosis

Upon consideration, what have you decided needs revision or supplementation? What cures, if any, do you have in mind?

(3) Volunteers: How to teach and practice specific CT skills

What specific skills do you teach? Give the group some examples of how you practice CT methods in the classroom and thereby help students acquire critical thinking abilities.
How to teach and practice specific CT skills?

*Teach, Question, Illustrate, Practice, Apply*

Some examples from Tiller’s Government class:

**Role playing**
- Ex: PAC campaign contributions exercise
- Ex: Partisan redistricting

**Interpretation**
- Ex: Ideological Thought
- Ex: Editorial Cartoons

**Problem solving**
- Ex: Creation of/ Editing of Opinion Polls
- Ex: Election Reform: Representing Minorities

**Simulations**
- Ex: Tragedy of the Commons principle
- Ex: Discrimination

**Critique**
- Ex: Fallacies Identification
- Ex: Politician’s Speech
How to Teach Through Socratic Questioning  Part II: Using Intellectual Standards to Assess Thinking

Clarity
- Could you elaborate further?
- Could you illustrate what you mean?
- Could you give me an example?

Accuracy
- How could we check on that?
- How could we find out if that is true?
- How could we verify or test that?

Precision
- Could you be more specific?
- Could you give me more details?
- Could you be more exact?

Relevance
- How does that relate to the problem?
- How does that bear on the question?
- How does that help us with the issue?

Depth
- What factors make this a difficult problem?
- What are some of the complexities of this question?
- What are some of the difficulties we need to deal

Breadth
- Do we need to look at this from another perspective?
- Do we need to consider another point of view?
- Do we need to look at this in other ways?

Logic
- Does all of this make sense together?
- Does your first paragraph fit in with your last?
- Does what you say follow from the evidence?

Significance
- Is this the most important problem to consider?
- Is this the central idea to focus on?
- Which of these facts are most important?
A Selection of Critical Thinking Abilities

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Identification & Recognition Abilities
• Identifying and recognizing elements of reasoning
• Uncovering significant similarities and differences
• Recognizing contradictions, inconsistencies, and double standards

Comprehension Abilities: Comparing & Clarifying
• Uncovering significant similarities and differences
• Refining generalizations and avoiding oversimplifications
• Clarifying and analyzing issues, conclusions, or beliefs
• Clarifying and analyzing the meanings of words or phrases
• Developing criteria for evaluation: clarifying values and standards
• Comparing and contrasting ideals with actual practice
• Reasoning dialogically: comparing perspectives, interpretations, or theories

Application Abilities
• Comparing analogous situations: transforming insights to new contexts
• Designing and carrying out tests of concepts, theories, and hypotheses
• Making interdisciplinary connections

Abilities of Analysis
• Clarifying and analyzing issues, conclusions, or beliefs
• Clarifying and analyzing the meanings of words or phrases
• Analyzing and evaluating arguments, interpretations, beliefs, or theories
• Analyzing and evaluating actions or policies
• Rethinking your thinking: metacognition
• Exploring thoughts underlying feelings and feelings underlying thoughts

Synthesis Abilities
• Reasoning dialogically: comparing perspectives, interpretations, or theories
• Comparing analogous situations: transferring insights to new contexts
• Making interdisciplinary connections
• Reasoning dialectically: evaluating perspectives, interpretations, or theories

Evaluation Abilities
• Refining generalizations and avoiding oversimplifications
• Comparing and contrasting ideals with actual practice
• Designing and carrying out tests of concepts, theories, and hypotheses
• Analyzing and evaluating arguments, interpretations, beliefs, or theories
• Analyzing and evaluating actions or policies
• Rethinking your thinking: metacognition
• Exploring thoughts underlying feelings and feelings underlying thoughts
• Reasoning dialectically: evaluating perspectives, interpretations, or theories
• Evaluating the credibility of sources of information
• Generating and assessing solutions
• Questioning deeply: raising and pursuing root or significant questions

Abilities to Create or Generate
• Designing and carrying out tests of concepts, theories, and hypotheses
• Generating and assessing solutions
• Creating concepts, arguments, or theories
Post-Test

Collaborative Learning:

Explain the changes you want to make to your peers.

How has the course improved?

What needs to happen to make still further revisions and improvements?
Reflection

What are the expected outcomes among students who take this new course?
CT Resources and References

The Foundation and Center for Critical Thinking
http://www.criticalthinking.org/

Critical Thinking on the Web
http://www.austhink.org/critical/

Critical Thinking Web
http://philosophy.hku.hk/think/

Critical Thinking: What It Is and Why It Counts

Longview Community College
http://mcckc.edu/longview/ctac/index.htm

Critical Thinking, by Adam Wiggins
http://dusk.org/adam/criticalthinking/

Statistical Literacy: Thinking Critically about Statistics
http://web.augsburg.edu/~schield/MiloPapers/984StatisticalLiteracy6.pdf

Argumentation and Critical Thinking Tutorial
http://www.humboldt.edu/~act/HTML/

Critical Thinking.org
http://www.criticalthinking.org.uk/

Skeptic Magazine
http://www.skeptic.com/

Teaching undergrads WEB evaluation

A Field Guide to Critical Thinking
http://www.csicop.org/si/9012/critical-thinking.html

Critical Thinking: What is it Good for? (In Fact, What Is It?)

Critical Thinking about Media Messages
http://www.frankwbaker.com/
REFERENCES ON UNDERSTANDING, TEACHING, AND ASSESSING CRITICAL THINKING


Teaching and Assessing for Critical Thinking and Deep Learning

* Developed by Tom Angelo for STARLINK and the Texas Community College Teachers Association - 2/22/2002