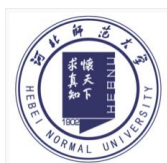


# CRITICAL THINKING



## SYLLABUS

### TEACHER

Prof. Daniel Rueda Garrido (PhD).

### 1. DESCRIPTION OF THE COURSE

It is thought to be offered to **third or fourth grade university students** from several fields of study and professional careers. For the course is to be given in English, student's English level must be a minimum of **B2** of Common European Framework of Reference for Languages or **TOEFL 87 - 109**.

It is intended to provide a **foundation for further studies in academic and vocational subjects**. Students will find critical thinking skills of great benefit in preparing for and undertaking a wide range of careers, including the fields of law, academic research (e.g. in the disciplines of science, arts and humanities), social science, journalism, medicine, business, accounting and engineering.

The course is to be taken in **one semester** (although a second part of the course might be advisable to offer). It is a presencial course, students must attend class and hand in their homework in due time.

The course will be developed into **18 weeks** and two stages with a midterm examination to evaluate students understanding and engagement.

Within the first stage, that is the first 9 weeks, basic concepts and skills will be enhanced. Students will identify arguments and their elements as well as several types of links between them. They will learn basic patterns of logical reasoning such as modus ponens or tollendo tollens, disjunctive and conditional reasoning, syllogism and general-particular arguments. The purpose it is to provide students with a wide range of tools to create their own arguments as well as to analyse and identify the pattern within other people's argumentation.

The second stage of the course, the next 9 weeks, endorses the tools and basic skills from the first stage to go further and recognise cases in which the arguments employed present a fallacy or a failure in the reasoning. Besides, students are to be able to analyse more complex reasoning and to break them down to show the arguments within it and thus to examine its formal validity and the potential lack of evidence in supporting the conclusion from the premises.

## 2. IMPORTANCE OF CRITICAL THINKING

**Critical thinking is a domain-general thinking skill.** The ability to think clearly and rationally is important whatever we choose to do. If you work in education, research, finance, management or the legal profession, then critical thinking is obviously important. But critical thinking skills are not restricted to a particular subject area. Being able to think well and solve problems systematically is an asset for any career.

**Critical thinking is very important in the new knowledge economy.** The global knowledge economy is driven by information and technology. One has to be able to deal with changes quickly and effectively. The new economy places increasing demands on flexible intellectual skills, and the ability to analyse information and integrate diverse sources of knowledge in solving problems. Good critical thinking promotes such thinking skills, and is very important in the fast-changing workplace.

**Critical thinking enhances language and presentation skills.** Thinking clearly and systematically can improve the way we express our ideas. In learning how to analyse the logical structure of texts, critical thinking also improves comprehension abilities.

**Critical thinking promotes creativity.** To come up with a creative solution to a problem involves not just having new ideas. It must also be the case that the new ideas being generated are useful and relevant to the task at hand. Critical thinking plays a crucial role in evaluating new ideas, selecting the best ones and modifying them if necessary.

**Critical thinking is crucial for self-reflection.** In order to live a meaningful life and to structure our lives accordingly, we need to justify and reflect on our values and decisions. Critical thinking provides the tools for this process of self-evaluation.

**Good critical thinking is the foundation of science.** Science requires the critical use of reason in experimentation and theory confirmation.

## 3. OBJECTIVES

Critical thinking is the analytical thinking which underlies all rational discourse and enquiry. It is characterised by a meticulous and rigorous approach. It involves the analysis and evaluation of information and argument; and the development of a range of intellectual skills that aid the use of reasoning to reach clear, logical and coherent judgements (conclusions) within a given context.

This Critical Thinking specification provides opportunities for students to: demonstrate and apply a wide range of thinking skills (especially reasoning skills) in a range of contexts; develop an ability to transfer these skills and make connections; integrate ideas and develop concepts; use arguments; make judgements and evaluate evidence; and examine questions from a broad standpoint.

As for the **goals of the subject**, students should be able to:

- Identify arguments and break them down into premises and conclusion.
- Use a wide range of arguments to endorse a given position or opinion.
- Be critical with the information presented as evidences for reasoning by others as well as as the information presented by himself/herself.
- Be precise in the organization of his/her arguments and the links between them using valid patterns and logical forms of deductive and inductive reasoning.
- Identify logical fallacies within argumentation.
- Analyse arguments and critically refuse those that pretend to be true but are not good arguments for their form or their content is not valid or don't convey enough information for them to work properly.
- Recognize daily reasoning in its logical form and potential use of fallacies in real speeches and written texts.

#### **4. BROKEN DOWN CONTENT AND TEACHING**

The content is to be found in the text book in the following pages and chapters:

Chapter 1: What is Critical Thinking? (p. 1)

Chapter 2: Recognizing arguments (p. 29)

Chapter 3: Basic logical concepts (with some additions from chapter 9: categorical logic) (p. 53 & p. 225)

Chapter 5 and 6: Logical Fallacies I & II (p. 119 & p. 140)

Chapter 7: Analyzing arguments (p. 164)

Chapter 8: Evaluating arguments and Truth claims (p. 195)

Below is the scheme of work, a schedule of topics and units to be covered in the course weekly.

Week 1	1hr. and 30 mins.
Topic	What is critical thinking?
Teaching	<ul style="list-style-type: none"> <li>• Show the standards of a critical thinking: aspects that a thinking has to satisfy to be considered critical.</li> <li>• Show and reflect on the benefits of clarity, precision, accuracy, consistency, logical correctness, completeness, fairness and relevance for human communication in several social setting such as school or academia, workplace, and daily life.</li> <li>• Identify some common barriers to critical thinking such as egoism or sociocentrism, assumptions and stereotypes.</li> <li>• Set out the characteristics of a proper critical thinker and those which oppose them and constitute the characteristics of uncritical thinkers.</li> </ul>
Resources	Textbook, pp. 1 - 28

Week 2	1hr and 30 mins
Topic	Recognising arguments
Teaching	<ul style="list-style-type: none"> <li>• Students are to understand what is an argument and what makes up an argument: premises and conclusion. Arguments are those sentences that assert or deny that something is the case. An argument is made of statements such as “Man is the measure of all things”. Students will engage themselves in identifying statements and distinguishing them from imperative sentences or subjective wishes, explanations or conditionals, for example.</li> <li>• Students will identify premises and conclusion with the aid of some tips; they will also learn the indicators of these two different types of statement of an argument: premise indicators and conclusion indicators.</li> </ul>
Resources	Textbook, pp. 29 - 51

Week 3	1hr and 30 mins
Topic	Recognising arguments
Teaching	<ul style="list-style-type: none"> <li>• Show how an argument can display strands of reasoning – developed lines of thought.</li> <li>• This can be done by giving students a very simple argument with, say, two reasons, and getting them to work backwards and develop reasons for the reasoning – in other words, the original reasons become intermediate conclusions for the overall argument.</li> <li>• Show students how the various elements of the argument fit together – how conclusions follow on from reasons and whether the reasoning is joint or independent. Students will differentiate a proper argument from other kind discourses and sentences by means of exercises from page 47 - 51.</li> <li>• Work with students to analyse arguments that have more varied elements, such as analogies, suppositional/hypothetical reasoning, etc.</li> </ul>
Resources	Textbook, pp. 29 - 51

Week 4	1hr and 30 mins
Topic	Basic logical concepts
Teaching	<ul style="list-style-type: none"> <li>This unit show students two basic type of arguments: deductive and inductive arguments. In order to make that distinction they will learn four simple tests: indicator words tests, the strict necessarily test, the common pattern test and the principle of charity.</li> <li>Students will learn four different patterns of deductive reasoning that we use in daily life as well as in science: 1) hypothetical syllogism (modus ponens - modus tollens), 2) categorical syllogism, 3) arguments based on mathematics, 4) arguments from definitions.</li> <li>Students will practise deductive patterns in activities from pages 71-72.</li> </ul>
Resources	Textbook, pp. 53 - 85

Week 5	1hr and 30 mins
Topic	Basic logical concepts
Teaching	<ul style="list-style-type: none"> <li>Students will enhance the deductive arguments with some categorical logic from page 225.</li> <li>Students will learn that categorical statements are those that claim some type of relationship between two classes or categories of things, for example, All S are P, Some P are R, then Some R are S. Categorical statements have 4 parts: all or some, subject, predicate and copula or linking verb (is or are).</li> <li>Students will use Venn diagram to test the validity of some arguments. They will practise this procedure by means of the activities from pages 248 - 250.</li> </ul>
Resources	Textbook, pp. 225 - 251

Week 6	1hr and 30 mins
Topic	Basic logical concepts
Teaching	<ul style="list-style-type: none"> <li>Students will revise deductive arguments and reflect on the need of different types of arguments.</li> <li>Students will learn 6 patterns of inductive reasoning also used in daily life as well as in science: 1) inductive generalization, 2) predictive argument, 3) arguments from authority, 4) causal arguments, 5) statistical arguments, 6) arguments from analogy.</li> <li>Students will practised inductive patterns in exercises from pages 72-73.</li> </ul>
Resources	Textbook, pp. 53 - 85

Week 7	1hr and 30 mins
Topic	Basic logical concepts
Teaching	<ul style="list-style-type: none"> <li>• Students will revise deductive arguments and compare with inductive arguments: validity vs. Strength.</li> <li>• Once they have learned useful patterns of reasoning, they need to enhance this knowledge by reflecting on and checking up the validity of deductive arguments as well as the strength of inductive arguments in particular.</li> <li>• They will also learn that there are deductive arguments that are valid and have all premises true, what is called a sound argument, and those that either are invalid or has at least one false premise, which are called unsound arguments.</li> </ul>
Resources	Textbook, pp. 53 - 85

Week 8	1hr and 30 mins
Topic	Review
Teaching	<ul style="list-style-type: none"> <li>• Students will review the topics studied on those 7 weeks: critical thinking, recognising arguments and basic logical concepts.</li> <li>• In order to practice the topics they will be engaged in solving a series of individual activities (to identify arguments within a text and the parts of the arguments as well as to check its validity; also students should involve in thinking counter-arguments to discuss the text ideas), small groups tasks (to think sound arguments to endorse a polemic idea such as why should we be social or what is the importance of economics nowadays, etc.) and a big group discussion.</li> </ul>
Resources	Texts from <i>Critical thinking unleashed</i> .

Week 9	1hr and 30 mins
Topic	Midterm
Teaching	<ul style="list-style-type: none"> <li>• Students will seat an exam in which they will show their understanding of the subject, and their ability to produce valid and strong arguments as well as to detect invalid and weak ones.</li> <li>• They will show the ability to produce mature arguments to defend a personal statement.</li> <li>• They will show understanding of the basic logical concepts insofar as they create categorical syllogism and hypothetical reasonings or check the validity of the arguments on a given text.</li> </ul>
Resources	

Week 10	1hr and 30 mins
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Topic	Logical Fallacies
Teaching	<ul style="list-style-type: none"> <li>• Students will learn what a fallacy is: a statement that contains a mistake in reasoning. They will learn that there are two wide types of fallacies: fallacies of relevance and fallacies of insufficient evidence.</li> <li>• The fallacies of relevance will be the topic of this class. They will identify statements according to their relevance to other statements: positive, negative relevant or logically irrelevant.</li> <li>• Some most common fallacies of relevance will be discussed and identify in speeches and written discourses. Between these fallacies, we have chosen 11: 1) personal attack (ad hominen), 2) attacking the motive, 3) look who is talking, 4) two wrongs make a right, 5) scare tactics, 6) appeal to pity, 7) bandwagon argument, 8) straw man argument, 9) red herring, 10) equivocation, 11) begging the question. They will practise this topics with activities from pages 134 to 136.</li> </ul>
Resources	Textbook, pp. 119- 139

Week 11	1hr and 30 mins
Topic	Logical Fallacies
Teaching	<ul style="list-style-type: none"> <li>• Students will learn what a fallacy is: a statement that contains a mistake in reasoning. They will learn that there are two wide types of fallacies: fallacies of relevance and fallacies of insufficient evidence.</li> <li>• The fallacies of insufficient evidence will be the topic of this class. The premises here studied are considered relevant but they do not present enough evidence to lead to the conclusion. There are 9 common fallacies of this type: 1) inappropriate appeal to authority, 2) appeal to ignorance, 3) False alternatives, 4) loaded questions, 5) questionable cause, 6) hasty generalizations, 7) slippery slope, 8) weak analogy, 9) inconsistency.</li> <li>• They will practise this topics with activities from pages 155 to 160 and 161 to 162.</li> </ul>
Resources	Textbook, pp. 140- 163

Week 12	1hr and 30 mins
Topic	Analizing arguments
Teaching	<ul style="list-style-type: none"> <li>• Students will enhance in this section the ability to identify and analyse arguments, its statements and its connections to see clearly on what grounds the conclusion is supported by the premises.</li> <li>• They will learn to implement the method of diagraming to analyse short arguments: diagraming consists of 5 parts that students will follow systematically: 1) circle premises and conclusions indicators, 2) number the statements as they appear in the argument, 3) arrange spatially the premises above the conclusion on a paper, 4) use arrows to indicate which premises are to be supported which each conclusions, 5) identify independent premises from linked premises.</li> <li>• They will diagram arguments methodically with the activities presented</li> </ul>

	in pages 189 - 193.
Resources	Textbook, pp. 164 - 194

Week 13	1hr and 30 mins
Topic	Analizing arguments
Teaching	<ul style="list-style-type: none"> <li>• Students will identify arguments within long pieces of writing.</li> <li>• They will learn how to standardize extended (long) arguments, that is, they will convert it to a standard logical form for a better possiblity of analysis. This method has 5 basic parts that students will follow systematically: 1) identify premises and conclusions by means of paraphrasis, 2) omit unnecessary material, 3) number the steps and list them in correct order, 4) fil lin any key missing premises, 5) justifications for each conclusion and subconclusions.</li> <li>• They will standardize arguments methodically with the activities presented in pages 188 - 193.</li> </ul>
Resources	Textbook, pp. 164 - 194

Week 14	1hr and 30 mins
Topic	Analizing arguments
Teaching	<ul style="list-style-type: none"> <li>• Students will identify arguments within long pieces of writing and some audio speeches.</li> <li>• They will enhance the two types of analysis seen in class: diagraming and standardizing by identifying arguments from activities in pages 188 - 193.</li> </ul>
Resources	Textbook, pp. 164 - 194

Week 15	1hr and 30 mins
Topic	Evaluating arguments and Truth claims
Teaching	<ul style="list-style-type: none"> <li>• Students will reflect on what is a good argument opposite to a bad argument, and do exercise in page 200.</li> <li>• Students also will think when is reasonable to accept a premise: a) The claim does not have conflict with personal experience, b) the claim does not have conflict with common beliefs backgrounds c) the claim comes from a credible source.</li> <li>• Students will work out the activities in page 202 - 203.</li> </ul>
Resources	Textbook, pp. 195 - 219



Week 16	1hr and 30 mins
Topic	Evaluating arguments and Truth claims
Teaching	<ul style="list-style-type: none"> <li>• Students will learn what exactly is refuting an argument and what ways are there to do it: 1) showing that a critical premise is false, 2) showing that conclusion does not follow from the premises.</li> <li>• Students will practice the evaluation of arguments with exercises in page 208 - 218.</li> </ul>
Resources	Textbook, pp. 195 - 219

Week 17	1hr and 30 mins
Topic	Evaluating arguments and Truth claims
Teaching	<ul style="list-style-type: none"> <li>• To conclude the course, students will review a series of key questions they should ask in evaluating arguments, such as are the premises true? Is the reasoning correct? Does the arguer commit any fallacies? Does the arguer express his or her point clearly? Are the premises relevant to the conclusions? Is there any contradictions between premises or conclusions? Is the argument complete? Is the argument fair?</li> <li>• They will practise with the text in pages 219 - 220.</li> <li>• They will practise with texts taken from the complementary book: Cohen, <i>Critical thinking unleashed</i>, 2009.</li> </ul>
Resources	Textbook, pp. 195 - 219

Week 18	1hr and 30 mins
Topic	Review for the final exam
Teaching	<ul style="list-style-type: none"> <li>• Students will review the topics studied by that week: critical thinking, recognising arguments and basic logical concepts.</li> <li>• In order to practice the topics they will be engaged in solving a series of individual activities (to identify arguments within a text and the parts of the arguments as well as to check its validity; also students should involve in thinking counter-arguments to discuss the text ideas), small groups tasks (to think sound arguments to endorse a polemic idea such as why should we be social or what is the importance of economics nowadays, etc.) and a big group discussion and debate.</li> <li>• Students will identify fallacies within pieces of text, and they will paraphrase and standardise extended arguments.</li> </ul>
Resources	Both textbooks

## 5. ASSESSMENTS

There are two assessments: midterm assessment and final exam. Besides, students are thought to answer some short questions at the end of lessons for self-evaluation, which will be shared with their teacher.

Both assessments (midterm and final) will consist of standardizing arguments and present their own statements, as well as short answers and multiple-choice questions.

## 6. RESOURCES:

In order to make it easier to follow, the layout of the course is guided by a textbook:

- VV. AA (King's College professors), *Critical Thinking. A students's introduction*, New York: McGraw-Hill, 2011.

A non compulsory but complementary book is:

- Cohen, E., *Critical thinking unleashed*, Plymouth: Rowman and Littlefield publishers, 2009.

In addition, the lessons are thought to be complemented with some other handouts and readings that the teacher will provide in class and through his website:

[www.danigarese.wixsite.com/pensarenespanol](http://www.danigarese.wixsite.com/pensarenespanol)

About the definition and contents of Critical Thinking it is worthy to take a look at these documents:

- International Center and Foundation for Critical Thinking:  
<http://www.criticalthinking.org/>
- Center for Critical Thinking (1996a). The role of questions in thinking, teaching, and learning. [On-line]. Available HTTP:  
<http://www.criticalthinking.org/University/univlibrary/library.nclk>
- Center for Critical Thinking (1996b). Structures for student self-assessment. [On-line]. Available HTTP:  
<http://www.criticalthinking.org/University/univclass/trc.nclk>
- Center for Critical Thinking (1996c). Three definitions of critical thinking [On-line]. Available HTTP:  
<http://www.criticalthinking.org/University/univlibrary/library.nclk>
- Scriven, M. & Paul, R. (1996). Defining critical thinking: A draft statement for the National Council for Excellence in Critical Thinking. [On-line]. Available HTTP:  
<http://www.criticalthinking.org/University/univlibrary/library.nclk>