

COURSE SYLLABUS

Philosophy 103: Introduction to Logic
Department of History and Philosophy
College of Arts and Humanities
Lander University
Greenwood, SC 29649

Section 07 MWF 11:30 am–12:30 pm LC 240

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Professor of Philosophy

Spring, 2011

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1 Essential Information

Instructor: <i>Lee C. Archie</i>	Office Hours:
Office: <i>LC M33</i>	<i>MWF 08:30 am–09:00 am</i>
(Learning Center Mezzanine)	<i>MWF 10:20 am–11:20 am</i>
Telephone: <i>+1 864 388 8383</i>	<i>TR 08:30 am–09:30 am</i>
Email: <i>larchie@philosophy.lander.edu</i>	Other times by Appointment
Instant Message: <i>philhelp@gmail.com</i>	

1.1 Supplementary Materials

Philosophy Homepage:

<http://philosophy.lander.edu/>

Introduction to Logic:

<http://philosophy.lander.edu/logic/>

Introduction to Logic Syllabus:

<http://philosophy.lander.edu/logic/syllabus.html>

Introduction to Logic Assignment Schedule

<http://philosophy.lander.edu/logic/assignment.pdf>

My Online Calendar and Class Schedule:

<http://tiny.cc/archie659>

Philosophy Forum:

<http://philosophy.lander.edu/cgi-bin/mwf/forum.pl>

Logic FAQ:

<http://philosophy.lander.edu/logic/faq.html>

Online Grades:

<http://philosophy.lander.edu/~larchie/grades.cgi>

How to Study:

<http://philosophy.lander.edu/study-topics.html>

1.2 Appointments—Office Hours

I look forward to talking to each of you about our philosophy course. You are warmly encouraged to stop by my office to discuss classroom lectures, ideas, or problems. For questions about course content and course procedures use the Philosophy Server's Philosophy Forum. You will need to register for this discussion board according to the instructions given in *Section 3.10* Philosophy Forum below.

Personal questions should be sent to larchie@philosophy.lander.edu only. *Please do not use Blackboard email or my Lander Webmail address for email contact in this course.* (I do not use or check Blackboard email, and I like to keep student correspondence separate from the mass mailings and notices which fill Lander's Webmail.)

My daily schedule is online here: <http://tiny.cc/archie659>

1.3 Teaching Methods

We adopt specific techniques recommended by many educators, namely lecture, discussion, readings, review tests, and problem solving.

1.4 General Education Core Requirements

Note especially for students graduating under previous *Lander University Catalogs*: Although Philosophy 103 Introduction to Logic fulfills the General Education Core Curriculum Requirement for Logical and Analytical Thought, this course does *not* fulfill the requirement for Humanities.

2 Course Description

2.1 Catalog Course Description

"A survey of traditional logic. Classical and contemporary logic are considered with special emphasis upon reasoning and argumentation. Attention is given to the nature of language and its relation to philosophical problems. *Three semester hours.*" From the *Lander University Catalog 2009-2010*.

2.2 Textbook

No textbook is required for this course. Tutorials, lecture notes, and sample quizzes and tests, homework exercises, and answers to sample tests, quizzes, and homework are provided online at

<http://philosophy.lander.edu/logic>

Lecture notes can be printed out by the student at a fraction of the cost of a current textbook.

2.3 Purpose of the Course

The general goal is to learn how to distinguish acceptable arguments from poor ones. The approach is two-sided: (1) the analysis and classification of fallacies and (2) the analysis and construction of valid arguments.

2.4 Objectives of the Course

The general aims of this introductory survey of logic are

1. to gain an appreciation for the complexity of language,
2. to learn effective methods of resolution for a variety of disagreements,
3. to obtain the ability to define terms,
4. to understand the structure of different kinds of arguments,

5. to recognize and evaluate the different kinds of arguments,
6. to grasp the features of traditional logic,
7. to sketch the principles of symbolic logic,
8. to obtain facility in symbolic manipulations,
9. to develop the ability to think critically, and
10. to realize that the proper use of logic is a reasonable way to solve problems.

2.5 Course Procedures

The methods used to obtain these ends are

1. to solve selected problems which illustrate basic logical principles,
2. to read carefully and critically the online notes and sample tests,
3. to ask questions and discuss problems in class,
4. to work selected logic exercises,
5. to test your understanding by means of special examinations, and
6. to question critically several interpretations of introductory logic.

2.6 Specific Skills Achieved

Upon completion of this course, all students should be able to

1. demonstrate basic skills of Internet browsing,
2. explain the difference between an argument and a disagreement,
3. identify premisses and conclusions in complex arguments,
4. explain the difference between deduction and induction,
5. analyze the interrelation between arguments and explanations,
6. understand the differences among truth, validity, and soundness,
7. identify the differences between factual significance and emotive significance,
8. list major uses of language,
9. identify and explain the common fallacies which occur in everyday discourse,
10. be aware of common methods of persuasion and propaganda,
11. evaluate one premiss deductive inferences,
12. refute arguments by devising logical analogies,

13. evaluate two premiss deductive inferences, and
14. diagram and evaluate complex arguments.

In this course you will learn the difference between an argument and an explanation, the difference between deduction and induction, and the differences among truth, validity, and soundness in argumentation. You will learn effective methods of analysis and criticism in the evaluation of argumentative discourse.

2.7 General Education Competency

Primary: Acquire critical thinking skills.

Secondary: Acquire skill in communicating clearly.

Evaluation: By quizzes, tests, and homework exercises.

3 Course Requirements

3.1 Evaluation

Judgment about the progress of your work is based on the quality and depth of critical and constructive thinking exhibited on tests, quizzes, homework, and message board. Your course grade is determined by averaging the points you achieve from the following scores:

Test 1 The Structure of Arguments

Test 2 Language and Informal Fallacies

Test 3 Categorical Propositions

Test 4 Categorical Syllogisms

Quiz Average Average of Best Ten Quizzes

Each item above counts 20% of your course grade; your final course grade is assigned according to the final average of these five scores. There is no comprehensive final examination in this class.

3.2 Grades: Suggestions for Doing Well

Judgment about the progress of your work is based on the four test scores and quiz average. The course is essentially performance based and consists of a progressive series of concepts to be learned and mastered. For this reason, few students can do well in this course by “cramming” before exams. Normally, the course is not difficult if you attend class, keep up with the homework daily, and do not attempt to learn a large amount of information at one time.

A good place to see how to study in our course is the “Notes on How to Study” on the Web at

<http://philosophy.lander.edu/study.html>.

All grades during the semester will be posted on the Philosophy Server. Mid-term grades will be posted on Lander's Blackboard. The mid-term grade is used to indicate approximate progress at the point in time that the grade is issued, and the mid-term grade is not a factor in computation of the final grade.

3.3 Tests

Tests are usually a combination of objective, short answer and problem-oriented questions. The subject-matter is primarily based on the reading and homework assignments. If you understand how to do the homework problems, you will do well on the tests. Some particularly difficult optional questions are often included for extra credit. Example tests, quizzes, lecture notes, and additional exercises are online at

<http://philosophy.lander.edu/logic/>

Test Review Worksheets are provided below in *Section E* Test Review Sheets and form an excellent basis for studying for tests.

3.4 Quizzes

Most quizzes are short objective questions written in class on a specific logical concept or specific types of logical problems. The quiz topic is often announced in advance of the quiz, and the topic has been thoroughly explored in a previous class. Some quizzes will be unannounced, and some quizzes will be homework assignments. *Important:* No credit is given for quizzes if a student leaves class before the end of the period.

3.5 Online Quizzes

Online quizzes are provided as study aids and may be used for self-testing. They are entirely optional and form no part of your grade in this course. Practicing with the online quizzes is especially important to test your understanding of the important concepts before you take a test. See

<http://philosophy.lander.edu/logic/quizzes.html>

for online example quizzes.

3.6 Recommended Study Times

Your final course grade is assigned according to your final average as described above in the subsection "Evaluation." The number of hours advised to study given below is usually an accurate guide to how well you will do in this class. If you study only for tests, your doing well in the course is doubtful. Many students assume they can do well in logic without doing homework and without studying outside of class because they have been able to do so in other high school or college classes. Since these students have become habituated to passing courses without much study, they are often alarmed to discover our logic course is substantially different from what they have expected.

- A** (above 90 points) reflects approximately two hours study per class hour; a great deal of time, thought, and effort; and mastery of the subject.
- B** (80 or above but below 90 points) reflects approximately one and a half hours study per class hour; above average time, thought and effort; and superior achievement.
- C** (70 or above but below 80 points) reflects approximately one hour study per class hour, average time, thought, and effort; and average achievement.
- D** (60 or above but below 70 points) reflects less than one hour study per class hour, cramming for examinations; minimum time, thought, and effort; below college level work; a less than adequate grasp of the course content; and less than satisfactory achievement.
- FA** reflects attending fewer than 75% of class meetings.
- INC** can only be given in cases of sudden illness or emergency.

3.7 Grades Online

You may access your grades online at any time on the Philosophy Server (not Lander's Blackboard except for mid-semester grades) with a username and password (not your Blackboard username and password) as described here.

Username: Your username for the course is the first letter of your first name followed by your *complete* last name in lowercase letters and without spaces. For example "Lauren Bouchett Satterfield" would have the login username of "lsatterfield" with no limitation of number of letters (as in some email programs).

Password: Your password is your Lander L-number (without hyphen). Type a capital L followed by eight digits: *e.g.*, **Lxxxxxxxx**.



Figure 1: Where to Find Grades Online

Where to Log In: From the Philosophy Homepage

<http://philosophy.lander.edu/>

click on the yellow "Current Grades Online" link under the gray heading entitled "Class Grades" as in *Figure 1*.

1. Choose your class from the descriptions in the drop-down box. If you log in incorrectly, be sure to re-select your class from the drop-down box because an incorrect login might re-set the class to a default philosophy course. See *Figure 2*.

Philosophy Grades Login

Class:

Username:

Password:

When logging in, be sure to reset the drop-down box to the class in which you are enrolled.

Figure 2: How to Log in for Grades

2. Enter your username *exactly* as described under the bold heading “Username” above.
3. The login process is case-sensitive—be sure to use lowercase letters for your username and a capital “L” in your L-number password. If you obtain the result of “bad login,” check to see if the Caps Lock key is on, or you have confused the letter “l” with the number “1” or with the capital letter “I.” Occasionally, the number “0” is can confused with the capital letter “O.”

3.8 Email Accounts

As a Lander student, you will need an email account, and you are encouraged to use your Lander email account assigned to you at registration. Emails to the class from your instructor go to your Lander email address by default from the class roster. Information about your Lander email account is available at

http://www.lander.edu/its/policies/policy_student_email.html .

Your email account information is listed under the “My Profile” section in Bearcat Web. Your default password should be your birth date in as **yyymmdd**, (*i.e.*, June 10, 1987 = 19870610).

The Office of Computing Services has set up a server whereby you can check your email on the following Web page:

<https://exchange.lander.edu>

Instructions for configuring your mail client such as Microsoft® Outlook® or Outlook Express® are described at

<http://www.lander.edu/its/faculty-staff/tlc/PDFFiles/MailboxMaint.pdf>

If you are on campus and you need further help with Lander email, you may obtain help from Lander's ITS (Lander's Information Technology Services) or from the Computer Labs in Jackson Library or Laura Lander Hall.

When you use email, please observe the following guidelines:

1. Include a clear and precise subject-line. When the subject box is left blank, the message is sometimes rejected by the proposed receiver's SPAM filter or the recipient.
2. *Important:* Include your name, class, and section in the message body even though your email address may be in the "From" line in the message header. For confidentiality reasons, I normally do not reply to anonymous email, and I cannot confidentially reply to email sent from a different account than that held by the student, for example email sent from accounts of friends or relatives.
3. Do not use all capital letters, as this is the Internet convention for screaming or angry content.
4. A good short summary of professional practice for email is provided by *Emailreplies.com*:

<http://www.emailreplies.com/>

and is well worth study-especially for graduating seniors first entering the marketplace.

3.9 Blackboard Discussion Board

The Blackboard Discussion Board is *not* used in this class. Instead, we will be using the Philosophy Forum on the Philosophy Server at

<http://philosophy.lander.edu/cgi-bin/mwf/forum.pl>

for which you will need to register as described below.

3.10 Philosophy Forum

The Philosophy Forum is for the posting of logic questions of any kind. Homeschoolers and students from universities in other countries post questions here as well.

The Philosophy Forum is an important part of obtaining help in real time from your classmates and from your instructor. You are encouraged to post questions, problems, or answers on any topic relating to the course policies, procedures, or homework of our philosophy class. Your post is placed directly on the Philosophy Web and can be immediately accessed anywhere in the world. The Philosophy Forum is a good place to obtain a pre-evaluation of your reading questions, to seek answers to assigned problems, or to ask for help.

In sum, the purpose of the Philosophy Forum is to discuss the daily class activities of our philosophy course: reading posts, comments, homework questions, homework answers, housekeeping matters, class procedures, assignments, test dates, and class policies.

Signing up for the Philosophy Forum is a completely separate procedure from Lander's Blackboard and is explained here.

1. On the Philosophy Homepage on the Web at <http://philosophy.lander.edu/> (notice that there is no “*www*” in this URI or Web address), click on the “Philosophy Forum” link in the left-hand column under the gray heading “Message Boards.”
2. From the Philosophy Forum page, click on the blue link “Register” near the top of the page.
3. Fill in a username of your own choosing and your email address—taking care to remember the username you have chosen. In a few moments, a password will be sent to your email address. If you cannot find the email from the Philosophy Forum in your Inbox, check to see if the message arrived in the Bulk Mail Folder in your email program. See *Figure 3* for a screenshot of the Register Page.

Username

Email Address (login password will be sent to this address)

Repeat Email Address

funds confectioner's

Type the two words:

CAPTCHA™ stop spam. read books.

Register

Enter username and email address. Type the two Captcha words and click "Register."

Figure 3: How to Register for Philosophy Forum

4. Click on the “Register” button, and a login page will load. Log in with your chosen username and the password you have just received *via* email. Be sure to take note of your password—perhaps, by saving or printing out the email message. Next, click the “Login” button. See *Figure 4*.

3.11 Troubleshooting Philosophy Forum

Lost Password: If you lose or forget your password to the Philosophy Forum, click on the Login link on the upper-right of the Forum homepage. At the bottom of the Login page in a box labeled “Request Password.” Fill in your username in the username bar, and click

Figure 4: How to Login to Philosophy Forum

the “Request” button. Your password will be sent to you *via* email.

Forgotten Username: If you have forgotten your username to the Philosophy Forum, click on the Login link on the upper-right of the Homepage. At the bottom of the Login page in a box labeled “Request Password,” fill in your account’s email address in the username bar, and click the “Request” button. Your username will be sent to you *via* your account’s email.

Forgotten Email Address: If you have forgotten your email address and you have posted to the Philosophy Forum at least once in the past, then find your message on the Philosophy Forum and click on your username. Your “Profile Page” will load, and your email address will be displayed, if you chose not to hide it when you first registered for the Philosophy Forum.

3.12 Profile Page

When you login to the Philosophy Forum for the first time, you can enter your full name on your Profile page. To accomplish this, log in to the Philosophy Forum and click on the “Option” link at the top of the page.

When the Profile page loads, you can change your password to a more easily remembered password if you wish to do so. Choose a simple easily remembered password, and record the password in your philosophy notebook or in the space provided below:

Username: _____
 Password: _____

Also, on this Profile page, be sure to enter your *real name* so that your posts can be credited. *Unless your real name is recorded here on the Profile Page, credit cannot be assigned to your posts since the recording program does not have your name to collate with your posts.* If you wish to hide your email address when you post, check the appropriate box on this page. I recommend but do not require that you do not hide your email address so that your instructor and other students can email you privately. If you do hide your email address,

be sure to check your official Lander email account for class-related communications even if you do not normally use that email account. When finished entering the information you want, scroll *way down* to the bottom of the page and click on the “Change” button so your information will be saved.

After you post to the Philosophy Forum, if you click on your blue hyperlinked username or you click on “Options” at the top of the page in the Philosophy Forum program, you can find out how many times you have posted as well as find out about your other personal data. To do so, click “Info” on the line just below your username on the Profile page. Next, click on the “Posts” link for a list of all your messages.

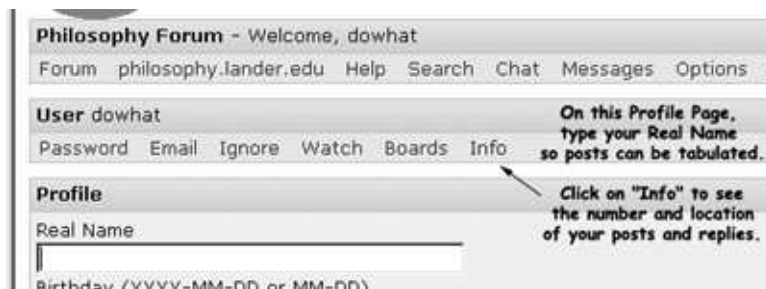


Figure 5: How to Find Your Posts

3.13 How to Post to the Board

1. From the homepage on the philosophy Website at

<http://philosophy.lander.edu>

(again, note there is no “*www*” in this URL,) click on the “Philosophy Forum” link toward the middle of the left-hand column.

2. When the “Philosophy Forum” page loads, click on the Philosophy Forum Board of interest. (In the screenshots presented here, the names of the Message Boards might not exactly match the current names on the board). The Philosophy Forum Message Boards for this class are under the heading: “Introduction to Logic [semester]”
3. (You need to log in to the Philosophy Forum in order to post comments, but you need not log in just to read the messages posted. If you work on a public computer, be sure to log off the Philosophy Forum in order to prevent the possibility of someone else posting to the discussion board under your name.)
4. If you wish to submit a comment, click on the blue hyperlink “Introduction to Logic [semester]” under the black font “Philosophy 103 Introduction to Logic” heading. See *Figure 6* for a screenshot.

When the next page loads, click on the “Add Topic” link. See *Figures 7* and *8*.

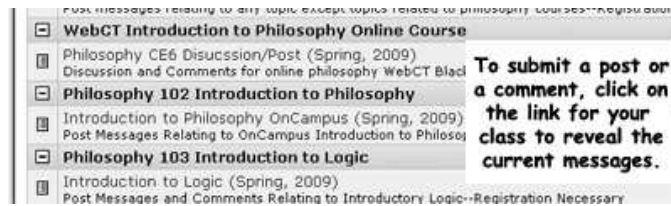


Figure 6: How to Post a Comment to the Philosophy Forum



Figure 7: Reading Posts and Adding Topics

5. Type in the space provided the title of your comment in the "Subject" bar and the text of the comment in the "Message Body" area. Be sure to review information about comments and posts in *Section 3.10 Reading Posts and Comments* above.
6. Again, if you work on a public computer, be sure to log off the Philosophy Forum in order to prevent the possibility of someone else posting to the Board under your name.

3.14 Extra Credit

Other than some occasionally offered problems on tests, the only other opportunities for extra credit are stated in the *Appendix Section D* below in this syllabus. Subjects and problems for this course have been chosen on the basis that they are the best and most important introduction to the beginning study of logic. "Extra Credit" problems are in addition to class requirements—not a substitute for, or a make-up of, missed class assign-

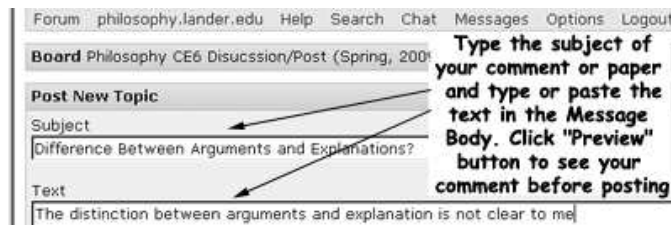


Figure 8: How to Submit a Comment

ments and are not an adequate substitute for learning basic ideas of the course. Offering extra credit to individual students conflicts with the legal and ethical requirements of equal opportunity since all persons have the right to the same class policies.

3.15 Your Job

Our course is not difficult if you keep up with the assigned work. If you seek help from me during office hours, the first items I will check are a copy of your study schedule, your class notes, tutorial notes, and worked homework problems—so that I can know where to begin to help. If a student were to claim he or she did not understand the subject well enough to set up a study schedule, ask any questions, take any notes, or attempt any homework, I am usually at a loss as the best way to help. A good place to see how to study in our course is the “Notes on How to Study” on the Web at

<http://philosophy.lander.edu/study-topics.html>

Free peer tutoring for logic might be available in the Lander Peer Tutoring Lab. For more information on peer tutoring, visit the Center at LC 345 or telephone +1 864 388 8814.

If you have now or develop during this semester a physical or a learning disability and you want your instructors to make reasonable accommodations, you must contact the Student Wellness Center nurse and provide the nurse with appropriate documentation. Once the nurse is aware of your disability, the nurse will inform all of your instructors each semester you attend Lander University unless you ask the nurse in writing not to do so.

Phone: +1 864 388 8885 **e-mail:** studentwellness@lander.edu

The Academic Success Center offers testing accommodations for students with disability who need extra time as well as a quiet room for testing during the year. Notify a staff member at +1 864 388 8308 and your instructor prior to the test date. The Success Center is located in LC 340. Also, free peer tutoring for logic should be available in the Peer Tutoring Lab. For more information, see

<http://www.lander.edu/asc/LabsAll.html>

- Come to class prepared.
- Take notes in class.
- Take notes on the important points of the assigned reading.
- Do all homework problems.
- Make extensive use of the online lectures, sample problems, quizzes, and tests.

3.16 My Job

We will find that logic is quite essential in all fields of endeavor.

- I will attempt to create the conditions under which you can exercise your native curiosity.
- Class lectures will be varied, and interesting examples will be used.
- I will show practical applications for all the logical methods employed.
- I will provide handouts and Web-based instructions for additional problem-solving support.

If I do my job correctly, our logic course will be one of the *most valuable* in your university career.

3.17 Class Policies

The following policies stated here help protect fairness of the course evaluation for the class as a whole. Many of these policies are generally assumed in many classes at Lander University.

Test Make-Up Policy: No tests can be specifically made-up *per se* during the regular semester in this course even though students have good reasons for missing class. Thus, prior to the final exam period *tests cannot be made-up for any reason*. If you miss one or more regularly scheduled tests during the semester *with an approved written excused absence*, your grade for that test or tests is established by the grade achieved on the appropriate makeup test given at the time of the final examination.

Important! An excused absence is granted for emergency situations only, and an email must be sent to your instructor *prior* to the test period. *A written excuse* must be provided before the last class period of the semester so that a make-up test can be made available during the final examination period. For example, if you had to miss the first test on “The Structure of Arguments” because of a medical emergency, your grade on that test would be established by your grade achieved on that test given at the final examination period dealing with “Test 1: The Structure of Arguments.”

Quiz Make-Up Policy: Quizzes cannot be make-up for *any* reason, instead, the highest ten quizzes are averaged for the final quiz grade. The reason for this no-make-up policy is explained in the Logic *Frequently Asked Questions*:

<http://philosophy.lander.edu/logic/faq.html>

Plagiarism: Students are expected to do their own work in this course. To use another writer’s or speaker’s ideas without giving credit by means of standard documentation is plagiarism. Academic dishonesty includes the giving or receiving of oral or written information so that a student receives undeserved credit for work. A student found guilty of academic dishonesty receives the grade of “0” on the assignment and in case

the violation is sufficiently serious, a “F” for the course. All cases of significant academic dishonesty on tests or papers will be handled in accordance with the Academic Honor Code as presented in the *Lander University Student Handbook*. Cases of plagiarism or academic dishonesty will be brought before the Honor Council where you will have an opportunity to explain your point of view.

Class Attendance: Students are expected to attend all classes; there are no “free cuts.” In the case of unavoidable absences, you are responsible for making up work done in class. If you attend less than 75% of the scheduled class meetings, you will not receive credit for the course. As a matter of fact, this policy is expressly in your interest, especially in this course, since attendance is essential for understanding and analyzing some of the complex argumentation discussed. Any student arriving late for class or leaving early from class will be counted absent from that class period. (This policy is important because understanding some of the complex reasoning process covered in this course is at the heart of doing well in philosophy.) *Important:* This policy means that a student leaving class after taking a quiz will have no credit assigned for the quiz.

Anyone missing class is responsible for obtaining the class notes and assignments from a classmate or from the Web resources. Additionally book notes, quizzes, sample tests, and class lectures are online at <http://philosophy.lander.edu/logic/>. Finally, be sure to contact your instructor as soon as academic difficulties first arise.

Closing of the University: If hazardous weather conditions or any other state of emergency necessitate University closing, the information will be available from the Lander automated information system telephone +1 864 388 8400 and other public sources including local radio and TV stations:

Also, these Websites will provide information in case of cancellations, delay of classes, or the closing of the university:

Lander University: <http://www.lander.edu>

State Office of Human Resources: <http://ohr.sc.gov/OHR/OHR-index.phtm>

Lander University’s Cell Phone Policy: Cell Phones are to be turned off before entering the class and remain off for the duration of the class. If there is an extenuating circumstance which requires the cell phone to be on during a class, the student must obtain permission prior to the class from the instructor to leave the phone on vibrate. Cell phones are not to be visible or used at any time, especially not during quizzes or exams.

University Requirements All Lander students will . . .

1. read and follow their professor’s syllabi, including course guidelines and procedures, to be prepared for class
2. check their Lander email accounts daily and check blackboard daily (if used in class) for class announcements, assignments, etc.
3. be aware of each professor’s absence and tardy policies
4. communicate concerns about classes to their professors, including asking for clarification if the student does not understand an assignment or expectations

5. be courteous to peers, professors, and the learning environment, avoiding the following disruptive classroom behaviors: sleeping, inappropriate talking, inappropriate laptop use, rudeness, doing homework for other classes, text messaging, or answering cell phones
6. not give, use, or receive unauthorized aid in academic activities because these are serious violations of academic integrity
7. know and accept the consequences of committing plagiarism, which could include receiving a failing assignment grade, failing the course, or being suspended from the University.

Appendices

A Notes on Truth, Validity, and Soundness

A.1 Definitions

Argument: any group of propositions of which one is claimed to follow logically from the others.

Inference: the *reasoning process* by which a logical relation such as entailment is perceived.

Entailment: a relation between or among propositions such that the truth of one proposition is determined by the truth of another proposition or propositions and such that this determination is a function solely of the meanings of the propositions concerned.

Valid Argument: a deductive argument whose conclusion follows necessarily from its premiss or premisses. (Usually an inference is said to be valid if it is permitted by the laws of some logic.)

Sound Argument: a valid deductive argument which has true premisses. (Obviously, the conclusion is true as well.)

A.2 Rules

1. A deductive argument is valid only if its conclusion follows necessarily from its premisses.
2. The fact that a deductive argument is valid does not imply that any of the propositions in the argument are true.
3. If the premisses of a valid deductive argument are true, then the conclusion must be true.
4. In an invalid argument any combination of truth values for the various propositions may occur.
5. An argument is sound if and only if it is valid and has true premisses.

A.3 Problems and Examples

The following examples serve to show the possible combinations of truth values in *valid* categorical syllogisms.

	Case 1	Case 2	Case 3	Case 4
Premises	T	F	T	F
Conclusion	T	T	logically impossible to be false	F

Examples:

Case 1A $\frac{\begin{array}{l} \text{(T) All cattle are mammals.} \\ \text{(T) All Angus are cattle.} \end{array}}{\text{(T) All Angus are mammals.}}$

Case 2A $\frac{\begin{array}{l} \text{(F) All plants are animals.} \\ \text{(F) All deer are plants.} \end{array}}{\text{(T) All deer are animals.}}$

Case 3A An example is logically impossible to construct. (*If a valid argument could have true premisses and a false conclusion, then deductive arguments could not be used to anything.*)

Case 4A $\frac{\begin{array}{l} \text{(F) No pens are markers.} \\ \text{(F) All pencils are pens.} \end{array}}{\text{(F) No pencils are markers.}}$

The following examples serve to show the possible combinations of truth values in *invalid* categorical syllogisms. Note that *every* combination of truth values is possible in invalid arguments. Also, note that Case 1B is invalid even though all statements happen to be true.

	Case 1	Case 2	Case 3	Case 4
premisses	T	F	T	F
conclusion	T	T	F	F

Examples:

Case 1B $\frac{\begin{array}{l} \text{(T) Some states are tyrannies.} \\ \text{(T) All dictatorship are tyrannies.} \end{array}}{\text{(T) Some dictatorships are states.}}$

Case 2B $\frac{\begin{array}{l} \text{(F) No sparrows are birds.} \\ \text{(F) No flying creatures are birds.} \end{array}}{\text{(T) Some flying creatures are sparrows.}}$

Case 3B $\frac{\begin{array}{l} \text{(T) All acids are chemicals.} \\ \text{(T) Some carbon compounds are not acids.} \end{array}}{\text{(F) Some carbon compounds are not chemicals.}}$

Case 4B $\frac{\begin{array}{l} \text{(F) All essays are books.} \\ \text{(F) No tomes are books.} \end{array}}{\text{(F) All tomes are essays.}}$

B SUMMARY OF INFORMAL FALLACIES

All of the following statements are true. Study each carefully. Refer to the cases mentioned in order to see how each statement is true.

1. A sound deductive argument is a deductive argument which is valid and whose premiss or premisses are true. (*Cf.*, Case 1A above.)
2. It is possible for a deductive argument to be both valid and unsound. (*Cf.*, Cases 2A and 3A above.)
3. If a deductive argument is sound, it cannot be invalid. (*Cf.*, Cases 1A and 3A above.)
4. If the premisses of a deductive argument are true, then the argument can be valid or invalid. (*Cf.*, Cases 1A, 1B, and 3B above.)
5. If the conclusion of a deductive argument is true, then the premisses can be true or false. (*Cf.*, Cases 1A, 2A, 1B, and 2B above.)
6. If a deductive argument is sound, then its conclusion must be true. (*Cf.*, Cases 1A and 3A above.)
7. If the premisses of a deductive argument are true, then the conclusion can be true or false. (*Cf.*, Cases 2A, 4A, 2B, and 4B above.)
8. If a deductive argument has a false premiss, then the argument must be unsound. (*Cf.*, Cases 2A, 4A, 2B, and 4B above.)
9. If a deductive argument is valid, then its conclusion can be true or it can be false. (*Cf.*, Cases 1A, 2A, and 4A above.)
10. If every proposition in a deductive argument is true, then the argument can be either sound or unsound. (*Cf.*, Cases 1A, and 1B above.)

See

http://philosophy.lander.edu/logic/tvs_quiz.html

for more examples of true-false questions on the topic of “Truth, Validity, and Soundness.” Also, see

<http://philosophy.lander.edu/logic/tvs.html>

for lecture notes on this topic.

B Summary of Informal Fallacies

See http://philosophy.lander.edu/logic/fallacy_topics.html for detailed explanations.

Symbol	Meaning
L	Locutor, speaker
s	statements, propositions
x, y	events, circumstances

1. *Ad ignorantiam* (argument from ignorance)

$$\frac{p \text{ is unproved.}}{\text{Not } p \text{ is true.}} \quad \text{or} \quad \frac{\text{Not } p \text{ is unproved.}}{p \text{ is true.}}$$

E.g., There is absolutely no evidence to suggest that you *won't* do well in logic; thus, we may conclude that you will do well. *OR E.g.*, There is no evidence to suggest that you *will* do well in logic; thus, we may safely conclude that you will not do well.

2. *Ad verecundiam* (argument from authority)

$$\frac{\text{Authority on } x, L, \text{ says } p \text{ is true.}}{\frac{p \text{ is outside of the scope of subject } x}{p \text{ is true.}}}$$

E.g., H.L.A. Jenkins, the noted international rose expert, has publicly stated that logic is essential to a life of excellence; consequently, this view must be so.

3. *Ad hominem* (argument against the person)

$$\frac{\frac{L \text{ says } p.}{L \text{ is a bad (good) person.}}{p \text{ is false (true).}} \quad \text{or} \quad \frac{\frac{L \text{ says } p.}{L \text{ comes from bad (good) } x, y.}}{p \text{ is false (true).}}}$$

E.g., You can't believe what Professor Smith says about teacher's salaries because, as a teacher himself, naturally, he would be in favor of more money. *OR E.g.*, You can't believe what Professor Smith says about teacher's salaries because he comes from a family of mostly teachers; naturally, he would be in favor of a higher salary.

4. *Ad populum* (argument from popular appeal)

$$\frac{\text{Snob Appeal}}{\frac{\text{People in the elite believe } p}{p \text{ is true.}}} \quad \text{or} \quad \frac{\text{Bandwagon}}{\frac{\text{The majority believe } p}{p \text{ is true.}}}$$

E.g., **Snob Appeal**: You have chosen the good life and a life of distinction, so now you need Four Roses Furniture to show that you have arrived. *OR E.g.*, **Bandwagon**: This logic course must be a good course because most people believe it is.

5. *Ad misericordiam* (argument from pity or misery)

$$\frac{L \text{ says } p. \text{ } L \text{ deserves pity because of } x,y.}{p \text{ is true.}}$$

E.g., Mary should be given the lead part in the play because she will be broken-hearted if she does not get the role.

6. *Ad baculum* (argument from force)

$$\frac{\frac{L \text{ says accept } p \text{ or event } x \text{ will happen.}}{x \text{ is bad (or good).}}}{p \text{ should be accepted as true.}}$$

E.g., I'm sure you will agree to the proposal before your committee because your future with this company might end if you don't.

7. **Complex Question**

How (or why) is p true?
 p is true.

E.g., When are you going to stop fooling around and begin to take your college education seriously? You will only benefit yourself if you start studying effectively.

8. **False Cause**

non causa pro causa *post hoc ergo propter hoc*
 x is related to y . *or* x is followed by y .
 x caused y . x caused y .

E.g., Napoleon became a great emperor since he was so short. *OR E.g.*, Since Jack sat in the back of the class and made an *A* on the last test, maybe I should sit there too.

9. *Petitio Principii* (circular argument; begging the question)

p is true.
 q is true. *or*
 r is true. p is true.
 p is true It is not the case that not- p is true.

E.g., Logic is an essential course because it is required at many colleges. It is required at those colleges because the ability to reason is vital, and it is vital because logic is so essential.

10. **Accident** (*ceteris paribus* exceptions)

Rule or general statement p is true in circumstance x .
 p is true in irrelevant circumstance y .

E.g., Since the United States is a democracy all persons all persons should be allowed to vote. Therefore, children ought to be able to vote for President.

11. **Converse Accident** (hasty generalization; glittering generality)

p is true in circumstance x .
 p is true in all or most circumstances.

E.g., Not one person spoke to me on the way to the library; Lander University is not as friendly as I was led to believe.

12. *Ignoratio elenchi* (*non sequitur*; irrelevant conclusion)

There is no complete standard classification of the ways people can make mistakes in arguments. *Ignoratio elenchi* is sometimes considered a suitable paraphrase for "fallacy." We use the term for any irrelevant argument given, whether valid or invalid.

C The Square of Opposition

The following diagram is a convenient summary of the resultant truth values for statements on the Square of Opposition:

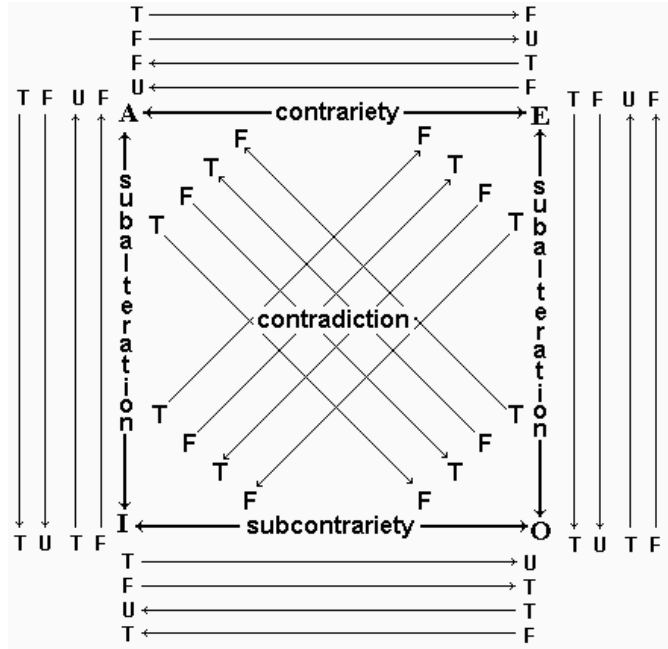


Figure 9: The Square of Opposition

D Informal Fallacy Project

The Informal Fallacies Project is an extra-credit project. You are to find and analyze informal fallacies being used in the source. You are to choose your own resources: newspapers, magazines, books, or journals. All references are to be cited in a standard bibliographical manner. Avoid using advertisements as fallacy examples when they are appeals rather than arguments purporting to prove a conclusion. Feel free to discuss with your instructor the quality of the fallacies before you write your analysis. Two points extra-credit on a test is awarded for each fallacy not found or analyzed by another student or found on an informal fallacy publication (*e.g.*, logic books or logic Internet sites). Please keep in mind the following guidelines:

1. Bibliography citation is given in proper form (APA, MLA, Chicago, or Science Citation).
2. The extensiveness and adequacy of the explanation of how each fallacy is effected is essential for full credit.
3. The format of your paper should be similar to the example illustrated below.

Fallacy:

Before considering these developments in detail it is worth asking why such an apparently simple device as the bicycle should have had such a major effect on the acceleration of technology. The answer lies in the sheer humanity of the machine. S.S. Wilson. "Bicycle Technology." *Scientific American*, 229, no. 3, (1973), 82.

Analysis: The question posed is a composite of several questions: (1) Is the bicycle an apparently simple device? If the answer to this question is "Yes," then a further question can be raised: (2) *Did* this "apparently simple device" have "a major effect on the acceleration of technology?" If the answer to this question is "Yes," the question is appropriate: (3) *How* had the bicycle had such a "major effect on the acceleration of technology"? An answer to (1) is not clearly straightforward. An answer to (2) is even less so, and an answer to (3) (provided in the text) is much more doubtful. Most of the technical innovations used in the bicycle (*e.g.*, differential gears, classic diamond frame, tubular frame, ball bearing, pneumatic tire) were developed independently of bicycle technology. Only at this point in the analysis would it be appropriate to raise the question, "*Why* the bicycle had a major effect on the acceleration of technology?"

Hence although the technology of this "apparently simple device" *might* be important for the evolution of modern technology, it is a fallacy to presuppose it had a major effect on the future development of technology. The answer provided by Dr. Wilson blurs the distinct aspects of the question he raises and treats it as a simple one; hence the fallacy of *Complex Question* occurs.

E Test Review Sheets

E.1 Test I: The Structure of Arguments

Important Concepts: be able to characterize and give examples.

philosophy	logic
statement or proposition	sentence
premiss	conclusion
argument	simple argument
complex argument	premiss indicator
conclusion indicator	inference
entailment	argument
explanation	conditional statement
imperative	hypothetical
deduction	induction
truth	validity
soundness	

Important Skills: be able to do the following kinds of problems.

1. Identify premiss and conclusion indicators
2. Diagram simple and complex arguments
3. Explicate the differences among truth, validity, and soundness

Important Distinctions: Be able to list differences and give examples.

1. sentence and statement
2. argument and explanation
3. deduction and induction
4. truth, validity, and soundness

Example test is online:

http://philosophy.lander.edu/logic/argument_test.html

E.2 Test II: Language and Informal Fallacies

Important Concepts: be able to characterize and give examples.

the forms and functions of language
 informative use
 directive use
 emotive significance
 disagreement in attitude
 methods of dispute resolution
 emotively neutral language
 performative utterances
ad verecundiam
ad misericordiam
ignoratio elenchi
 false cause
 accident

the types of sentences
 expressive use
 factual significance
 disagreement in belief
 varieties of disagreements
 slanted language
 phatic language
ad ignorantiam
ad hominem
ad baculum
 complex question
petitio principii
 converse accident

Important Skills: be able to do the following kinds of problems.

1. analyze and resolve disagreements in belief and attitude
2. distinguish among the forms and functions of language
3. identify and analyze informal fallacies

Important Distinctions: be able to list differences and give examples.

1. declarative, interrogative, exclamatory, and imperative sentences
2. belief and attitude
3. emotive and neutral language
4. accident and converse accident
5. fallacies of relevance and presumption

Example test is online:

http://philosophy.lander.edu/logic/fallacies_test.html

E.3 Test III: Categorical Propositions

Important Concepts: be able to characterize and give examples.

quantity, quality, and distribution
 universal negative statement
 particular negative statement
 contrariety
 contradiction
 conversion
 contraposition

universal affirmative statement
 particular affirmative statement
 sneaky *O* statement
 subcontrariety
 subalternation (implication)
 obversion

Important Skills: be able to do the following kinds of problems.

1. square of opposition—immediate inferences
2. further immediate inferences
3. successive immediate inferences
4. Venn diagrams of statements

Important Distinctions: be able to list differences and give examples.

1. *A*, *E*, *I*, *O* statements
2. quantity, quality, and distribution

Example test is online:

http://philosophy.lander.edu/logic/prop_test.html

E.4 Test IV: Categorical Syllogisms

Important Concepts: be able to characterize and give examples.

syllogism	major term
minor term	middle term
mood	figure
standard form	major premiss
minor premiss	figure
logical analogy	equivocation
four term fallacy	undistributed middle fallacy
illicit minor	illicit major
fallacy of exclusive premisses	existential fallacy
fallacy of drawing an affirmative conclusion from a negative premiss	

Important Skills: be able to do the following kinds of problems.

1. refute an argument by means of devising a logical analogy
2. evaluate syllogisms by means of Venn diagrams
3. evaluate syllogisms by means of syllogistic fallacies
4. evaluate arguments in ordinary language

Important Distinctions: be able to list differences and give examples.

1. major and minor premiss
2. illicit major and illicit minor
3. equivocation and four term fallacy

Example test is online:

http://philosophy.lander.edu/logic/syll_test.html and
http://philosophy.lander.edu/logic/ordinary_test.html

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