Term Information

Effective Term   Summer 2015

General Information

Course Bulletin Listing/Subject Area   Linguistics
Fiscal Unit/Academic Org   Linguistics - D0566
College/Academic Group   Arts and Sciences
Level/Career   Undergraduate
Course Number/Catalog   2052H
Course Title   Theories of Linguistics: The Scientific Method for Abstractions and Unobservables
Transcript Abbreviation   Scientific Method
Course Description   This course will provide a strong grounding in fundamental principles of scientific reasoning illustrated through concrete examples across the Natural and Social sciences with emphasis on Psychology and Linguistics. This course is suitable for students from all backgrounds including non-science majors. Students will gain understanding of what it means to "do science".
Semester Credit Hours/Units   Fixed: 3

Offering Information

Length Of Course   14 Week, 7 Week, 4 Week (May Session), 12 Week (May + Summer)
Flexibly Scheduled Course   Never
Does any section of this course have a distance No
education component?
Grading Basis   Letter Grade
Repeatable   No
Course Components   Lecture
Grade Roster Component   Lecture
Credit Available by Exam   No
Admission Condition Course   No
Off Campus   Never
Campus of Offering   Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites
Exclusions

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code   16.0102
Subsidy Level   Baccalaureate Course
Intended Rank   Freshman, Sophomore, Junior, Senior

Requirement/Elective Designation

General Education course:
    Mathematical or Logical Analysis
The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- to construct valid and logical arguments through use of deductive and inductive reasoning processes
- to practice and increase general problem solving skills
- to develop sophistication in evaluating scientific scholarship in any domain
- to gain a thorough understanding of the Scientific Method

Content Topic List

- Scientific Thinking
- Logical Systems and The Scientific Method
- The Science of the Mind
- Information Processing Models
- The Science of Language

Attachments

- 2052-syll-final.pdf: Syllabus

    (Syllabus. Owner: McGory,Julia Tevis)

- Qualitative Difference.pdf: Qualitative Difference

    (Statement of Qualitative Difference. Owner: McGory,Julia Tevis)

- 2052-Rubric-Final.pdf: Grading Rubric

    (Other Supporting Documentation. Owner: McGory,Julia Tevis)

- BA_Major_Program_Curricular_Map_final.pdf: Curricular Map

    (Other Supporting Documentation. Owner: McGory,Julia Tevis)

- 2052-Concurrence and Intended Audience-final.pdf: Concurrence and Intended Audience

    (Concurrence. Owner: McGory,Julia Tevis)

- 2052-GE-assessment plan-final.pdf: GE Assessment Plan

    (GEC Course Assessment Plan. Owner: McGory,Julia Tevis)

- 2052-GE-rationale-final.pdf: GE Compliance Stmt

    (GEC Model Curriculum Compliance Stmt. Owner: McGory,Julia Tevis)

- 2052 Cover Letter.pdf: cover letter

    (Cover Letter. Owner: McGory,Julia Tevis)

- 2001syllabus.pdf: comparable syllabus

    (Syllabus. Owner: McGory,Julia Tevis)

- concurrence psych.png: concurrence Psychology

    (Concurrence. Owner: McGory,Julia Tevis)

Comments

- - Please upload actual concurrence from Psychology. The document uploaded is an explanation from the Dept of Linguistics, not the concurrence issued by Psychology.

  -Please upload syllabus of non-Honors course at a level comparable to the proposed course. *(by Vankeerbergen,Bernadette Chantal on 11/25/2014 12:21 PM)*

- Concurrence was requested (10/2) from Psychology and Philosophy departments. Concurrence received from Psychology. *(by McGory,Julia Tevis on 10/27/2014 10:56 AM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	McGory,Julia Tevis	10/27/2014 10:56 AM	Submitted for Approval
Approved	McGory,Julia Tevis	10/27/2014 10:56 AM	Unit Approval
Approved	Heysel,Garett Robert	11/11/2014 09:50 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	11/25/2014 12:23 PM	ASCCAO Approval
Submitted	McGory,Julia Tevis	11/25/2014 04:13 PM	Submitted for Approval
Approved	McGory,Julia Tevis	11/25/2014 04:32 PM	Unit Approval
Approved	Heysel,Garett Robert	11/25/2014 06:57 PM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler Hogle,Danielle Nicole	11/25/2014 06:57 PM	ASCCAO Approval

Department of Linguistics

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Curriculum and Assessment Services
154 Denney Hall
164 W. 17th Avenue

September 22, 2014

To Whom It May Concern:

Please find enclosed a New Course Request for Linguistics 2052H, "The Scientific Method for Abstractions and Unobservables." Dr. Rebecca Morley, Assistant Professor of Linguistics has been awarded funding from the University Honors and Scholars Center to develop and instruct this course. This course will fill the Mathematical or Logical Analysis GE and so will be reviewed for meeting College of Arts & Sciences, Honors & Scholars, and General Education requirements. We believe that all required documentation has been provided for these multiple reviews. Should you need additional information or have concerns, please do not hesitate to contact me.

Best regards,

Dr. Julia McGory
Undergraduate Program Coordinator
614-688-3109
jmcgory@ling.osu.edu

LING H2052
Theories of Linguistics:
The Scientific Method for Abstractions and Unobservables

Instructor
Dr. Becca Morley
Oxley 212
morley@ling.osu.edu

Course Meeting Times & Location
TBA

Office Hours
TBA, as well as by appointment

Course Description
The aim of this course is to provide a strong grounding in some of the fundamental
principles of scientific reasoning – illustrated through concrete examples across the
Natural and Social sciences. There is a particular focus on the "mentalistic" sciences of
Psychology and Linguistics; however, this course is suitable for students from all
backgrounds, and the material is relevant not only across the sciences, but to non-science
majors as well. Students will gain understanding of what it means to "do science", and
what is entailed by the Scientific Method. In the evaluation of original research there are
four main questions that are posed: 1) At what <u>level of description</u> is the theory being
described? 2) What is the relationship between the <u>theory and the model</u>, 3) what is the
<u>linking hypothesis</u> the author is assuming whereby their results can be interpreted as
evidence for or against the given theory? and 4) is the proposed theory <u>falsifiable</u>, and if
so, what type of evidence would falsify it?

The general aim of this course is to provide students with rigorous analytic and reasoning
skills. Students will practice high level critiques of scientific articles that will allow them
to assess the quality of the argumentation, the validity of the conclusions, and the
relevance of the result, even in cases where they may be unfamiliar with certain details of
the subject matter.

GE Quantitative Reasoning: Mathematical or Logical Analysis
The Goals of the Quantitative Reasoning GE are stated as follows: *Students comprehend
mathematical concepts and methods adequate to construct valid arguments, understand
inductive and deductive reasoning, and increase their general problem solving skills.*

This course stresses logical reasoning and argumentation via discussion and careful
analysis of theories across Philosophy, Biology, Physics, Psychology, and Linguistics.
Students will learn how to interpret experimental and modeling results as tests of
theoretical hypotheses.

Expected Learning Outcomes: Students are expected to learn how to construct valid arguments, understand inductive and deductive reasoning, increase their general problem solving skills, and develop sophistication in critiquing scientific scholarship in any domain.

Assignments & Grading

Students will read roughly 2 papers each week, and be required to prepare concise synopses of at least 12 of these readings of their choosing. Synopses are due the day the reading is covered in class.

Synopses are NOT article summaries; they are to be clear descriptions of the argument structure of the article, explaining the reasoning of the author, the theoretical assumptions, the linking hypotheses between experiment and theory (as relevant), the type and quality of evidence used, the conclusions, links to other work, and any shortcomings or problematic issues in the claims of the paper. Example synopses will be provided as guidelines. Synopses will be graded on the letter grade scale, using the OSU Standard Scheme for conversion with A corresponding to 93%, A- to 90%, B+ to 87%, B to 83%, B- to 80%, C+ to 77%, C to 73% C- to 70%, D+ to 67%, and D to 60%. Final grades will be computed with the corresponding ranges, e.g., A: 93%-100%.

In Class Participation

Evaluation:
12 synopses: 50% of the course final grade.
In class participation in discussion: 50% of the final grade

Academic Misconduct
"It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct http://studentlife.osu.edu/csc/."

Students with Disabilities

"Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; http://www.ods.ohio-state.edu/."

Readings:

Readings will be selections from the following list, organized by topic. All Readings will be available in pdf format on the Carmen site for this class. In compliance with copyright laws, not more than 20% of course readings are taken from one source.

Science & the Scientific Method

Cohen, Morris R., and Ernest Nagel. "An Introduction to Logic and scientific method: abridged edition." *London Routledge & Sons, Ltd.* (1934).

Hume, David. "1739. A treatise of human nature." *London: John Noon* (1978).

Landau, Larry. "Progress & its Problems." (1977).

Mendel, Gregor. *Gregor Mendel's Experiments on plant hybrids: a guided study*. Rutgers University Press, 1993.

Mill, John Stuart. *System of Logic: Ratiocinative and Inductive, Being a Connected View of the Principles of Evidence and the Methods of Scientific Investigation*. Longmans, Green, 1898.

Westaway, Frederic William. *Scientific method: Its philosophical basis and its modes of application*. Hillman-Curl, 1937.

Psychology & Cognitive Science

Bechtel, William. "Levels of description and explanation in cognitive science." *Minds and Machines* 4.1 (1994): 1-25.

Broadbent, Donald. "A question of levels: Comment on McClelland and Rumelhart." (1985): 189.

Hofstadter, Douglas R. *Godel, Escher, Bach: An eternal golden braid* (1979).

Marr, D. "Vision, 1982." *Vision: A Computational Investigation into the Human Representation and Processing of Visual Information*.

McClelland, James L., and David E. Rumelhart. "Distributed memory and the representation of general and specific information." *Journal of Experimental Psychology: General* 114.2 (1985): 159.

Newell, Allen. "Physical Symbol Systems." *Cognitive science* 4.2 (1980): 135-183.

Rumelhart, David E., and James L. McClelland. "Levels indeed! A response to Broadbent." (1985): 193.

Searle, John R. "The explanation of cognition." *Royal Institute of Philosophy Supplement* 42 (1997): 103-126.

Skinner, B. F. (1957). *Verbal behavior*. New York: Appleton-Century-Crofts.

Language & Linguistics

Baker, C. Carl Lee, and John Joseph MacCarthy, eds. *The logical problem of language acquisition*. MIT Press (MA), 1981.

Carnie, Andrew. *Syntax: A generative introduction*. Vol. 19. John Wiley & Sons, 2012.

Chomsky, Noam. "A review of BF Skinner's Verbal Behavior." *Language* 35.1 (1959): 26-58.

Chomsky, Noam. *Aspects of the Theory of Syntax*. No. 11. MIT press, 1965.

Cohen, David. *Explaining linguistic phenomena*. Halsted Press, 1974.

Cohen, David, and Jessica R. Wirth, eds. *Testing linguistic hypotheses*. Halsted Press, 1975.

Croft, William. *Typology and universals*. Cambridge University Press, 2003.

Givón, Talmy. *On understanding grammar*. New York: Academic Press, 1979.

Jensen, John T. *Principles of generative phonology: an introduction*. Vol. 250. John Benjamins Publishing, 2004.

Sapir, Edward. *Language: An introduction to the study of speech*. Courier Dover Publications, 2004.

De Saussure, Ferdinand. *Course in general linguistics*. Columbia University Press, 2013. (reconstruction of lectures given between 1906- 1911, from student notes)

Weekly Schedule

HW Assignments: You must write 12 synopses of assigned readings (your choice) throughout the entirety of this course. These are due on the same day the article (or set of articles) is discussed in class. <u>Late work is not accepted except in very rare instances.</u>

Scientific Thinking

Week 1
- Introduction
- Readings from Westaway (1937)
  Chapter 9.1-9.7 Bacon
  Chapter 10.1-10.9 Descartes
  Chapter 11.1-11.11 Locke

Week 2
- Selections from Hume's *Treatise of Human Nature*
- Selections from Mill's *Systems of Logic*

Logical Systems & The Scientific Method

Week 3   Reading from Cohen & Nagel (1934)
- Chapter 2: The Nature of a logical or mathematical system
  Chapter 5: Logic and the Method of Science
  Chapter 12: Fallacies

- Chapter 6: Hypotheses and the Scientific Method
  Chapter 7: Classification & Definition

Week 4
- Readings from Laudan (1977)
  Chapter 1: The role of empirical problems
  Chapter 2: Conceptual problems
                     <u>Case Studies</u>
- Excerpts from Corcos & Monaghan (1993):
  Gregor Mendel's Experiments on Plant Hybrids

Week 5
- Excerpts from Westaway (1937)
  pp. 308-311: Darwin on *The Sensitiveness of Worms to Light*
  pp.311-314: Lord Avebury on *The Power of Communication Amongst Ants*
  pp. 314-316: Harvey on *The Circulation of the Blood*
- pp.371-382: *The Structure of the Atom*

The Science of the Mind

Week 6   <u>Behaviorism</u>
- excerpts from Skinner (1957)
- Chomsky, Noam. "A review of BF Skinner's Verbal Behavior." *Language* 35.1 (1959): 26-58.

Week 7   <u>Cognitive Science</u>

- excerpts from Hofstadter (1979)
- Excerpts from Newell, Allen. "Physical Symbol Systems." *Cognitive science* 4.2 (1980): 135-183.

Information Processing Models

Week 8   <u>Levels of Description</u>
- Readings from Marr (1982)
        General Introduction
        The Philosophy & The Approach
        In Defense of the Approach

Week 9   • Bechtel, William. "Levels of description and explanation in cognitive science." *Minds and Machines* 4.1 (1994): 1-25.
- Searle, John R. "The explanation of cognition." *Royal Institute of Philosophy Supplement* 42 (1997): 103-126.

Week 10   <u>Case Study: Memory Representations</u>
- McClelland, James L., and David E. Rumelhart. "Distributed memory and the representation of general and specific information." *Journal of Experimental Psychology: General* 114.2 (1985): 159.

- Broadbent, Donald. "A question of levels: Comment on McClelland and Rumelhart." (1985): 189.

    Rumelhart, David E., and James L. McClelland. "Levels indeed! A response to Broadbent." (1985): 193.

The Science of Language

Week 11   <u>What is Linguistics?</u>
- Readings from Sapir (1921/2004)
- Readings from De Saussure (1911/2013)

Week 12   • Deep Structure: Readings from Chomsky (1965)
- Introduction to Syntax: Excerpts from Carnie (2012)

Week 13   • <u>Introduction to Phonology</u>: Excerpts from Jensen (2004)
        <u>Universals</u>: Readings from Croft (2003):
        Chapter 9: Typology as an approach to language
- <u>Acquisition</u>: Readings from Baker & McCarthy (1981)
        Learnability, restrictiveness, and the evaluation metric H. Lasnik
        On the learnability of Abstract Phonology B.E. Dresher

Week 14   Theory Evaluation & Falsification
- Readings from Cohen & Wirth (1975)
When does a test test a hypothesis, or, What counts as evidence? V.A. Fromkin
Competence and indeterminacy S.P. Stich

- Readings from Cohen (1974)
What explanation is and isn't R.C. Dougherty
Explanatory Inadequacy E. Bach

Readings from Givon (1979)
Chapter 1: Methodology: *on the crypto-structuralist nature of transformational grammar*

Instructor: Murat Yasavul **Email:** `yasavul.1@osu.edu`
Office: 204 Oxley Hall **Mailbox:** 225 Oxley Hall
Office phone: (614) 688-3108
Office hours: MW 11:00 AM – 12:00 PM and *by appointment*
Course website: `http://carmen.osu.edu`
GE Info: GE Quantitative and Logical Skills: Mathematical or Logical Analysis

TA Coordinator: Dr. Hope Dawson **Email:** `dawson.165@osu.edu`
Office: 202A Oxley Hall **Mailbox:** 225 Oxley Hall
Office phone: (614) 292-5420

1   Course description

The overall aim of this course is to provide an introduction to formal and natural languages and the ways we think about their syntax and semantics. We will be working on formal systems like propositional logic, natural deduction and categorial grammar to develop ways of valid reasoning and analyze the structure and meaning of natural languages. Students are expected to develop abilities to think abstractly about the syntax and semantics of these systems and to be able to use the formal tools to analyze natural language sentences.

1.1   GE Goals

Students develop skills in quantitative literacy and logical reasoning, including the ability to identify valid arguments, and use mathematical models.

Expected learning outcomes: Students comprehend mathematical concepts and methods adequate to construct valid arguments, understand deductive reasoning, and increase their general problem solving skills.

   This course meets these outcomes by introducing formal systems by which students will learn how to construct valid arguments, how to reason in a formal and precise way, i.e. to construct proofs, and finally how to apply formal tools in analyzing natural languages.

2 Course requirements

2.1 Lecture notes

There is no required textbook for this course. You will have access to lecture notes through the course's Carmen website. Going over the lecture notes **BEFORE** class will significantly contribute to what you get from each class. Therefore, you are expected to read the assigned lecture notes before each class.

2.2 Participation

Participation in class discussions is encouraged and expected. You are also expected to actively follow the lectures and be willing to answer questions or work examples. This is a course where you **CANNOT** learn the material by only coming to class and taking notes. Asking questions on the spot will help you in the long term as the course will always build on previously covered material. Therefore, attendance for this course is **MANDATORY**. Attendance, participation and effort count towards your grade.

2.3 Coursework

The coursework for this course consists of regular homework assignments and two problem sets.

2.3.1 Homework assignments

You will be frequently assigned homework assignments. They are designed to assess whether you are keeping up with the material and to make sure that you do not fall behind. Consequently, working on these assignments constitutes an integral part of your work for this class and will provide me with a way to see whether you are actually learning what you're supposed to learn.

2.3.2 Problem Sets

There will be two problem sets throughout the semester. The first one should be considered as a midterm and the last as the final exam for this course. They will be similar to the homework assignments in nature but will go beyond being devices to familiarize yourself with the basics of the topics we cover in class. This means that you should expect them to be somewhat harder compared to the homework assignments and to require creativity to some extent.

2.4 Quizzes

There will be regular and un-announced in-class quizzes about the reading assignments. These quizzes will consist of 1-2 short answer questions and will be used to make sure that you are keeping up with the required readings.

3 Grades

Your letter grade will be assigned according to the following scale:

A	93—100	B+	87—89.$\bar{9}$	C+	77—79.$\bar{9}$	D+	67—69.$\bar{9}$
A−	90—92.$\bar{9}$	B	83—86.$\bar{9}$	C	73—76.$\bar{9}$	D	60—66.$\bar{9}$
		B−	80—82.$\bar{9}$	C−	70—72.$\bar{9}$	E	0—59.$\bar{9}$

Evaluation breaks down into four parts:

Problem set 1	20%
Problem set 2	30%
Homework assignments	40%
Quizzes	2%
Participation & attendance & effort	8%
Total	100%

4 Course Policies

1. I encourage you to come to office hours (or make an appointment) to discuss **ANY** questions you might have about the class.

2. Come to class prepared. Remember that the reading assignments are due the day for which they are assigned.

3. **Collaboration:** You are encouraged to discuss and/or work with your classmates on the homework assignments if need be. This is considered a natural part of the learning process and the assignments are designed to fulfill this as much as possible. Yet, all the material you turn in **MUST** reflect your own, individual work and understanding, which means that you **MUST** write up your work on your own and understand the content of what you turn in. If you work with your classmates on a homework assignment, please do acknowledge that by writing their names on your assignment. Note that homework assignments will be assessed on the basis of your effort and completion rather than getting the answers right each time.

4. The problem sets should be considered as take-home examinations. Therefore, working on them in groups is **NOT** allowed. This means that you are **not** allowed to consult with or talk about the problem sets in any way with anyone **OTHER THAN THE INSTRUCTOR**. You are expected to complete them individually. Bear in mind that, in contrast to homework assignments, problem sets will be graded on accuracy.

5. All homework assignments and problem sets can be handwritten in a legible way or be typed.

6. All assignments are to be submitted **IN CLASS** on their due date.

7. Late work will **NOT** be accepted. Exceptions are made only for documented (e.g. medical) emergencies.

Academic misconduct: The Ohio State University takes academic misconduct very seriously. As with any class at this university, students are expected to follow University's Code of Student Conduct. I am required by the university to report any suspected case of academic misconduct to the Committee on Academic Misconduct. Should you have any questions about this issue or are unsure as to whether a certain action constitutes a violation of this code, please consult me.

Students with special needs: Any student who is registered with the Office of Disability Services should let me know about his or her specific needs. I will work with the Office to provide special accommodations for any students who require such assistance. Students who are not registered with this office but think that they might benefit from the services provided should contact them in person. The Office of Disability Services is located in 150 Pomerene Hall; telephone: 614-292-3307; website: http://www.ods.ohio-state.edu/.

LING 2001 : LANGUAGE AND FORMAL REASONING
FALL 2014
TENTATIVE SCHEDULE
(This schedule is subject to change)

Week	Date	Topic
Week 1	8/28 R	Course overview
Week 2	9/2 T	Basic concepts, formal vs. natural languages, truth conditions
	9/4 R	Propositional Logic: translating sentences into logic, logical connectives
Week 3	9/9 T	Propositional Logic: logical connectives
	9/11 R	Propositional Logic: logical connectives (cont'd)
Week 4	9/16 T	Constructing truth tables. Tautologies, contradictions, contingencies
	9/18 R	Propositional Logic: Logical equivalence. Revision
Week 5	9/23 T	Natural Deduction and its relation to truth tables
	9/25 R	Natural Deduction: rules of inference. Validity and soundness of an argument
Week 6	9/30 T	Natural Deduction: rules of inference (cont'd)
	10/2 R	Natural Deduction: logical vs. structural rules, formal proofs
Week 7	10/7 T	Natural Deduction: formal proofs
	10/9 R	Natural Deduction: formal proofs (cont'd)
Week 8	10/14 T	Natural Deduction: formal proofs (cont'd)
	10/16 R	Revision
Week 9	10/21 T	Basic English syntax
	10/23 R	Basic English syntax (cont'd)
Week 10	10/28 T	Categorial Grammar: lexicon and rules
	10/30 R	Categorial Grammar: basic sentence structure
Week 11	11/4 T	Categorial Grammar: basic sentence structure
	11/6 R	Categorial Grammar: more complex examples
Week 12	11/11 T	**Veteran's Day — no class**
	11/13 R	Categorial Grammar: semantics
Week 13	11/18 T	Categorial Grammar: semantics
	11/20 R	Categorial Grammar: coordination
Week 14	11/25 T	Categorial Grammar: coordination
	11/27 R	**Thanksgiving — no class**
Week 15	12/2 T	Categorial Grammar: coordination
	12/4 R	Categorial Grammar: coordination
Week 16	12/9 T	Revision

LING H2502
Theories of Linguistics:
The Scientific Method for Abstractions and Unobservables

GE: Mathematical or Logical Analysis

GE Rationale
    1) How does the course meet the required coursework?

The intent of this category is to focus on argument in a context that emphasizes natural language, mathematics, computer science, or quantitative applications not primarily involving data. In addition to mathematics and computer science courses, courses which emphasize the nature of correct argumentation either in natural languages or in symbolic form are appropriate. Courses should emphasize the logical processes involved in mathematics, inductive or deductive reasoning, or computing, as well as the theory of algorithms. Courses in logic and argumentation are also appropriate. Bachelor of Science (B.S.) students satisfy this requirement by completing Math 1151 or the equivalent.

The coursework involves close reading and discussion of works which either directly or indirectly concern the scientific method and the development of theory. Evaluating such work requires working through the logic and argumentation of the authors. The instructor will lead students through this evaluation process focusing on argument structure as it relates to course readings. This includes (1) summarizing the referenced theory or theories; (2) understanding the relationship between the theory/s and the model; (3) understanding the author's assumptions that connect new evidence to a proposed theory; and (4) using inductive and deductive reasoning to suggest potential problems with the proposed model. Information will be disseminated through lecture, discussion, assigned readings, and written assignments.

Expected Learning Outcomes
Students comprehend mathematical concepts and methods adequate to construct valid arguments, understand inductive and deductive reasoning, and increase their general problem solving skills. Courses proposed for this component of the General Education (GE) should be designed with these goals and expected learning outcomes (ELOs) in mind and considered in terms of their contribution to the requirement as a whole. Courses will be reviewed by the Arts and Sciences Curriculum Committee (ASCC) in light of these goals and expected learning outcomes. All GE courses should be made available to undergraduates with a minimum of prerequisites and not be restricted to majors.

- How do the course objectives address the GE category expected learning outcomes?
    <u>The course objective is to provide students with a strong grounding in the fundamental principles of scientific reasoning.</u> For this goal to be achieved, students in this course will learn to demonstrate understanding of scientific concepts and principles, identify the relationships between closely-related concepts, understand the relationship between scientific principles, theories, and models, and analyze and evaluate scientific explanations and predictions.

- How do the readings assigned address the GE category expected learning outcomes?

The readings for this class cover complex subject matter, and many are from original sources, as opposed to textbooks. Students are expected to improve their critical reading, problem solving, and analytic skills through practice at reading, stating of facts versus offering opinions (discussion), and evaluating (writing) such articles. Emphasis will also be placed on learning how to extract the essential parts of the argument without getting distracted by technical details that may be beyond the students' levels of expertise.

- How do the topics address the GE category expected learning outcomes?
  Theory development is essentially logical argumentation and problem solving. Thus the subject matter embodies the GE Requirements.

- How do the written assignments address the GE category expected learning outcomes?
  The written work required for this class goes beyond a mere recounting of the details of the readings. As in class discussion, the focus will be on the core of the argument structure. Students will be asked to go beyond comprehension and summary of the readings. This includes, but is not limited to, considering strengths and weaknesses of the argument, alternative explanations for a phenomenon, and ways in which the proposed theory could be falsified.

LING H2502

Theories of Linguistics:
The Scientific Method for Abstractions and Unobservables

GE: Mathematical or Logical Analysis

Expected Learning Outcomes
Students comprehend mathematical concepts and methods adequate to construct valid arguments, understand inductive and deductive reasoning, and increase their general problem solving skills.

Assessment Plan

a) <u>Description of the specific methods the faculty will use to demonstrate that the aggregate of his/her students are achieving the goals and expected learning outcomes of this GE category</u>: Success will be defined by two factors that together will determine if student learning outcomes have been attained. Both will consist of evaluating students' written work using a rubric. There are three Rubric categories that represent the three ELO's of the Quantitative Reasoning: Mathematical Concepts and Methods; Inductive & Deductive Reasoning; Problem Solving Skills. The Communication category includes assessment of the first ELO; the Evaluation category includes assessment of the second ELO, and the Synthesis category includes assessment of the third ELO (see Rubric document).

   First is an improvement score calculated for each individual student comparing their first to last written assignment. Second is the student's average grade on the final written assignment. The class averages of these scores will show both whether students have improved over the course, and by how much.

b) <u>Explanation of the level of student achievement expected</u>:
   Possible scores using the same rubric for each writing assignment range from 3-15 points, where a score of 3 is 20% and 15 is 100% of the total grade. For the pre- and post- test comparison, students are expected to improve by at least 20% (3 rubric points). For the final assignment, students are expected to have an average score of 70% or above (a rubric score of 10.5 or above).

c) <u>Description of follow-up/feedback process</u>:
   Students will be provided scores along with rubric category ratings. Sample graded rubrics (chosen based on general weaknesses exhibited by students in the class) will be reviewed during class sessions to ensure student awareness and comprehension of fundamental student learning outcomes. The course will be improved by noting particular subject matter and/or readings where student scores are lower than average. Alternative readings and discussion strategies will be updated in those areas. At mid-semester, students will complete an assessment of the rubric to establish its potential for capturing student progress. Should the instructor and/or the students find the rubric to not capture student learning outcomes, the rubric itself will be modified.

Curriculum Map (separate attachment)
A curriculum map including the proposed course is provided in Appendix B. The proposed course aligns with four of six student learning outcomes in the Linguistics Major Program. While the course is a 2000-level course, the content as with many related GE courses in the "quantitative and logical skills" category is challenging and is included here as an intermediate level course.

Statements or qualitative differences between Ling2052-H and non-honors versions of similar courses refer to each of the following expectations requested by the ASCC Honors Panel:

1. *How the specific goals of the course will be achieved.*
2. *The exposure to the basic material in the course, and ways in which added breadth and depth of material will be included.*
3. *The exposure to, and use of, methodology and research techniques, and especially the ways in which the course will provide exposure to the nature of scholarship in the field.*
4. *Amount and quality of work expected from students on papers, examination(s), and projects; and the method of grading that work.*
5. *The amount and kind of student/faculty contact, including how the course will offer a significant level of interaction and engagement between faculty and students, and how such engagement will be achieved.*
6. *How an environment will be fostered that facilitates intellectual exchange among students (if applicable).*
7. *Ways that creative thinking will be an essential aspect of the course requirements.*
8. *How the course will embrace, as appropriate, interdisciplinary work and study.*
9. *Evidence of a pedagogical process that will demand a high level of intellectual output.*

Qualitative Differences
(1,2,3,8) The specific goals of the course will be achieved via discussion and careful analysis of theories across Philosophy, Biology, Physics, Psychology, and Linguistics. Readings will include original research articles with the entire class period being devoted to discussion of 1 or 2 readings.

(4,7,9) Class discussion will count for a large proportion of the grade, and students will be expected and encouraged to contribute thoughtfully. Additionally, reading synopses will be required in which synthesis of the material and a deep conceptual understanding are to be demonstrated. These will be graded using the attached rubric; students will be provided with ample feedback and assistance in order to improve their written work over time.

(5,6) The format of the course will not be lecture-based; the professor will have equal footing with the students in a roundtable discussion format, but will guide the discussion when necessary.

Synopsis Scoring Template

A "synopsis" is a clear description of the argument structure in an article. It explains the (1) reasoning structure of the author, (2) the theoretical background, (3) the hypotheses that connect the described experiment to a particular theory, (4) the type and quality of evidence used, (5) the conclusions made, (6) the links to similar work, and (7) shortcomings within the claims of the paper.

The following rubric will be used to grade each synopsis that you write.

Performance Element	Exemplary (4)	Proficient (3)	Developing (2)	Emerging (1)	Not Present (0)
I. Communication *Relevant information (synopsis elements (1), (2), and (4)) is provided in a clear and organized manner.* ***GE-Mathematical concepts & methods***	Identifies all three elements and includes supporting details and examples which are organized logically and coherently.	Identifies 2 of the three elements and provides some supporting details and examples in an organized manner.	Identifies 2 of the three elements with little detail or explanation.	Identifies only 1 of the elements with few or no details or states information without explanation verbatim from the text. Organization is difficult to follow.	Identifies 0 of the components of a synopsis and provides no detail or examples. Organization is illogical
II. Evaluation *Concepts and data provided in article are clearly stated and interpreted. Synopsis elements (3) and (5).* ***GE-Inductive & Deductive Reasoning***	Insightfully interprets data or information; identifies obvious as well as hidden assumptions; distinguishes central arguments from peripheral elements; accurately identifies chain of reasoning.	records data or information verbatim from the text; identifies obvious assumptions; distinguishes central arguments from peripheral elements; accurately identifies chain of reasoning.	Makes some errors in data or information interpretation; does not distinguish the central arguments; identifies some of the chain of reasoning.	Interprets data or information incorrectly; does not include the central argument; Incomplete or incoherent chain of reasoning.	Does not evaluate data, information, or evidence; does not provide reasoning.
III. Synthesis *Identify connections between information presented in article and previously read material. Synopsis elements (6) and (7).* ***GE-Problem Solving***	Insightfully relates concepts and ideas from multiple sources; recognizes missing information; identifies alternative explanations, and possible confounds.	makes superficial reference to concepts from other sources; recognizes some missing information; identifies possible confounds.	Inaccurately or incompletely relates concepts and ideas from multiple sources; identifies obvious confounds.	Poorly integrates information from more than one source; Superficially assesses conclusions.	Does not integrate information from other sources; fails to assess conclusions.

Theories of Linguistics:
The Scientific Method for Abstractions and Unobservables

This is a proposal for a new course, one that covers subject matter in linguistics, philosophy and psychology, but does not significantly overlap with any existing courses in those areas. The aim of this course is to provide a strong grounding in some of the fundamental principles of scientific reasoning – illustrated through concrete examples across the Natural and Social sciences. This course fills a critical need in introducing students to the application of the abstract principles of the scientific method early (prior to graduate school), and in a cohesive fashion. Although certain courses in the Philosophy department cover some of the same material (PHIL 2650 and 3650: Philosophy of Science), they have a more narrow focus, and are less applied. (It should be noted that PHIL 3600: Philosophy of Language covers almost completely different material, and excludes discussion of the scientific method.) There is less overlap within the Psychology department, where the closest course is Psychology 2300, a course on research methods. The proposed course will emphasize theories of unobservable mental processes. Course content will emphasize the treatment of fundamental concepts in scientific reasoning: levels of description, the relationship between theories and models, how to evaluate the link that allows experimental results to act as evidence for or against a given theory, and falsifiability. If this course is successful it is our intention to create a non-Honors version in order to to reach the widest audience.

Intended Audience:
The course content will be of the most direct relevance to relevance to Linguistics and Psychology majors. This course is geared towards students with a focus on social sciences, natural sciences, history of science, and philosophy of science. The concepts covered, however, are fundamental to the sciences as a whole, and to any discipline in which critical thinking is required.

Hi Julie:

After looking at your syllabus, I do not see sufficient overlap with any Psychology course as to object to it. Thus, consider me a supporter of your proposed course.

Regards,

Richard Petty

On 10/1/2014 4:31 PM, McGory, Julia wrote:

> Hello Professor Petty,
>
> I oversee curriculum development in the Department of Linguistics. We have developed a course "Theories of Linguistics: The Scientific Method for Abstractions and Unobservables" (LING 2052H) and are seeking concurrence and appropriate comments from your unit. I have attached the syllabus for your review along with a concurrence form. You may respond by signing off in spaces provided on the form or by replying to me via email with your recommendations.
>
> In order for your concurrence and feedback to be included in the curricular process, this concurrence needs to be completed by October 15, in two weeks. Thank you for considering this request.
>
> -Julie McGory
>
> Dr. Julia T. McGory
> Undergraduate Program Coordinator
> Department of Linguistics
> 614-688-3109

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CURRICULAR MAP for the UNDERGRADUATE MAJOR IN LINGUISTICS, BA PROGRAM

Goal 1: *Comprehend the fundamental analytical components needed for linguistic analysis for multiple linguistics sub disciplines.*	Goal 2: *Apply the relevant analytical method(s) to uncover the characteristics of a particular linguistic situation or form.*	Goal 3: *Formulate a well-organized, well-supported argument.*	Goal 4: *Use multiple methods of linguistics inquiry to evaluate the relationship between Lang and society.*	Goal 5: *Recognize how various uses and applications of linguistics apply to real world phenomena and events.*	Goal 6: *Engage in original research.*
Beginning 2000 Intro to Lang in the Humanities	**Beginning** 2000 Intro to Lang in the Humanities	**Beginning** 2000 Intro to Lang in the Humanities	**Beginning** 2000 Intro to Lang in the Humanities	**Beginning** 2000 Intro to Lang in the Humanities 2051 Analyzing the Sounds of Lang 3701 Lang & the Mind	**Beginning** 2000 Intro to Lang in the Humanities
Intermediate *2052 Theories of Linguistics 3401 Words & Meanings 3901 Lang Evolution & Lang Change 3701 Lang & the Mind 3802 Lang & Computers	**Intermediate** 2001 Lang & Formal Reasoning2051 Analyzing Sounds of Lang *2052 Theories of Linguistics 3191 Internship in Linguistics 3801 Codes & Code-Breaking 3801 Codes & Code-Breaking 3901 Lang Evolution & Lang Change	**Intermediate** 2367.01 Lang, Sex, & Gender 2367.02 Lang & Advertising *2052 Theories of Linguistics 3701 Lang & the Mind 3601 Lang, Race, & Ethnicity in the US 3602 Lang & Social Identity 3603 Lang Across Cultures 3604 Conducting Sociolinguistic Research	**Intermediate** 2367.01 Lang, Sex, & Gender 3501 American Indigenous Langs 3601 Lang, Race, & Ethnicity in the US 3602 Lang & Social Identity 3603 Lang Across Cultures 3604 Conducting Sociolinguistic Research 3901 Lang Evolution & Lang Change	**Intermediate** 3191 Internship in Linguistics 3601 Lang, Race, & Ethnicity in the US 3602 Lang & Social Identity 3603 Lang Across Cultures 3604 Conducting Sociolinguistic Research 3701 Lang & the Mind	**Intermediate** *2052 Theories of Linguistics 2367.02 Lang & Advertising Ling3801 Codes & Code-Breaking 3802 Lang & Computers 3191 Internship in Linguistics
Advanced 4100 Phonetics 4200 Syntax 4300 Phonology 4350 Morphology 4400 Lang & Meaning	**Advanced** 4100 Phonetics 4200 Syntax 4300 Phonology 4350 Morphology 4400 Lang & Meaning 4550 Field Methods 4780 Research Seminar 4998 Research 4999 Thesis Research	**Advanced** 4100 Phonetics 4300 Phonology 4780 Undergrad Research Seminar 4998 Research 4999 Thesis Research	**Advanced** 4597.01 Lang Endangerment & Death 4597.02 Lang & the Law 4601 Lang & the Black Experience 5601Introduction to Sociolinguistics 5901 Introduction to Historical Linguistics	**Advanced** 4780 Undergrad Research Seminar 4998 Undergraduate Research 4999 Undergraduate Thesis Research 4550 Field Methods	**Advanced** 4780 Undergrad Research Seminar 4597.01 Lang Endangerment & Death 4597.02 Lang & the Law

*New Course Proposal