GRANDE PRAIRIE REGIONAL COLLEGE
PY2580/PSY355: A2
Cognitive Psychology
Mon: 11:30, Fri 10:00 am
Jan 9 – Apr 16, 2004
(3-0-0) UT to all Alberta Universities (3)

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Office Hours: TR: 9:00-12:00; M: 2:00-4:00; W: 10:00-12:00

REQUIRED TEXT:
Solso, Robert L. (2001). Cognitive psychology, (6th Ed), Allyn and Bacon.

GENERAL GOALS:
The general orientation of this course will be the basic research perspective of the scientific definition and investigation of perception, learning, memory and cognition. It will be a course in the established research traditions, theories and paradigms of Cognitive psychology. It will not be an applied course on how to learn more efficiently or how to make your memory better. However, the discerning student will discover much that can be generalized to personal application.

COURSE GOALS:
As a result of participating in this course, students will be able to demonstrate the following learning outcomes through written and oral communication:
1. Knowledge structures: organized, related and interrelated information, the ability to identify, abstract out, structure the essential elements of theories and perspectives. They will be able to define and explain the concepts, principles, and perspectives listed on the next page in their own words. They will have developed structured, organized, related, interrelated, and applicable knowledge of these perspectives, not simply lists of details and definitions, as demonstrated by structured, organized and interrelated written work. (The what of cognitive psychology)
2. Procedural knowledge: research methods and procedures, the gathering of data in testing hypotheses to support or contradict theories and models, the general progression of science through theory and model building, and the communication of ideas. (The how of cognitive psychology)
3. Metacognitive judgement: independent, critical, and analytic thought concerning the proper use of scientific and research procedures. They will be able to evaluate the concepts and principles of these theories and models on the basis of how well they describe and explain human cognitive abilities by using logic,

reason and data, rather than authority, tradition, personal feelings, or personal experiences. (The where and when of psychology of learning and memory.)
4. Attitudinal considerations; understanding the value of this work and its application, attending class and participating in discussion. (The why of cognitive psychology)

COURSE OBJECTIVES: (Note: These are my planned topics; however, I reserve the right to change them as student interests and abilities dictate. Changes will be advertised. Also, I intend to let student interests and abilities guide the speed of the course; consequently, no dates are given for these papers.)

As a result of taking this course, students will be able to:

#1 Define and explain cognitive psychology's non-dualistic use of models in its research; the purpose of models, their use in understanding human structures and processes of intelligence and thought, and the empirical methods of research by which they are evaluated.

#2. Define, explain, and evaluate the structural (Broadbent, Triesman) and the procedural (Kahneman, Keele) models of attention, what they do, how they do it, and how they're similar and different, particulary concerning the "bottleneck" phenomenon.

#3. Compare, contrast, and evaluate the template matching hypothesis with the pattern perception hypothesis, according to their interpretations of how one recognizes familiar objects.

#4. Compare, contrast, and evaluate the Constructivist view with the Gestaltic/Gibson's Ecological Optics view of perception, defining the major or essential components of each, and pointing out their similarities and differences.

#5. Define, explain and evaluate Newell and Simon's concept and goals of the use of computers as models for human intelligence; define, explain and evaluate Atkinson and Shiffrin's model of the same by explaining the essential components (structures and processes) and the evidence that supports and contradicts such a model.

#6. Define, explain, give examples of, and evaluate the Connectionist perspective of cognitive processing.

#7. Use the basic concepts of schemas (prototypes, stereotypes, frames, and scripts) to describe common, everyday activities such as recognizing familiar objects, events and places and responding appropriately to them.

#8. Present the data that Collins and Quillion's Spreading Activation Model was designed to account for, and evaluate how well it does so. Students will represent their knowledge of familiar places as a hypothetical spreading activation network, showing how one could answer questions and draw inferences concerning its contents, and demonstrating the differences in reaction time for verification tasks.

#9. Represent the first line of War of the Ghosts using Anderson and Bower's ACT model.

#10 Compare, contrast and evaluate the contributions of nature and nurture to the learning of language, primarily using the theoretical positions of Skinner and Chomsky, but elaborating with the perspectives of Sociobiology, Biobehaviorism, Bandura's Social Learning and Piaget's Intellectual Development theories.

#11. Define thinking, and differentiate lower and higher order thought, and demonstrating Perry's Fifth Stage of Relative Thinking by synthesizing the several definitions of thought (Perkins, Piaget and Kahneman) into one workable and novel definition to which one shows a personal commitment.

#12. The Big Picture: what is the perspective of cognitive psychology, what does it try to do, how does it do it, how well does it succeed.

General Comments:
There is so much more to learn than we can cover in our limited class time. Make the most of your college experience by reading the text (and other sources) beyond what is called for in the papers. It will make your papers all the more insightful.

Your text seems to sacrifice order for detail; it covers *everything* at the expense of organization. Lectures shall provide an organized overview; as such, we will not be covering the book chapter by chapter, but topic by topic. Use your index to read the pertinent and relative information.

My preferred teaching style is interactive lecture, derived from the teaching philosophy that nothing is learned until responses are made, either verbally or written.

I am extremely available for student consultation, and I will be more than happy to proof student’s rough drafts and to further discuss course material.

Papers are due at the beginning of the class period on the specified dates. Late papers will be marked, but penalized 2 points per class day. As adequate time is allotted between the end

of the unit and the due date, no excuses other than medical and major emergencies will be accepted. Ensure you have an adequate supply of ink cartridges and paper, and back up all work on disk. E-mailing papers is acceptable, but not encouraged. Papers with spelling and grammatical errors will be penalized. Papers with multiple errors will be returned unmarked.

ASSESSMENT:

"A grade is an inadequate report of an inaccurate judgement of a biased and variable judge of the extent to which a student has obtained an unidentified level of mastery of an unknown proportion of an indefinite amount of material."

-Paul Dressel, 1955.

Research psychology recognizes the authority of, and bases its judgements on, carefully collected data, as opposed to opinion, tradition, authority, or feelings. In keeping with this philosophy: rather than me imposing my authority on you and telling you what you need to know and then arbitrarily assigning cut-off points according to the arbitrary judgements based upon non-standardized tests, you as a class will inform me of what you are capable of, through my measurement of your performance. Students will be assessed according to their relative position within the class. This will be explained fully in the first class period; handouts are available for those who wish to understand this more fully.

Assessment will be based on nine summary papers and a final exam, each weighted at 10%. After the final grade assignment, students will be eligible for a subjective raising of their grade based upon their involvement in, and contribution to, the class; this may include attendance.

A GENTLE WARNING: Some students try to copy work from textbooks or other published writing and claim it as their own. This form of cheating is called plagiarism or theft of intellectual property. This is easy for me to spot; the difference in writing style between undergraduates and professionals is immediately obvious.

Other students may try to buy papers from the Internet, or to copy from other students. This is also easy for me to spot, as a purchased paper is invariably different in scope from the highly specific requirements of this course. Further, It can be seen when a student shows no knowledge during class discussion of what was in the paper that he or she has just submitted.

A third way of cheating is to buy or borrow papers from

students who took this course from me last year. Please be forewarned that I have changed the course content, student requirements, and textbook substantially from last year, so finding information in a paper from last term's course will be a dead give-away.

If you cheat, you will be removed from this class, given an "F" for the term, and I will write a letter to the administration recommending you be suspended from college.

Old, keep for reference and future changes.

TOPICS TO BE COVERED

Ch 1 Cog Psych Intro. The cognitive paradigm, definitions of cognition, types of knowledge; Dualism, metaphors and models, research methods in cog psych; codes, structures and processes, cognitive paradigms.

Ch 2 Perception. Attention and Pattern Recog: Process of theory and model building in science, the nature of attention, bottleneck or structural models (Broadbent, Treisman & Deutsch), processing theories (Kahneman & Keele), template matching, feature detection, feature analysis, context.

Ch 3 Perception. Cog Processes in Vision: Constructivism, Hoffding, illusions, prototypes, and schemata; Gestalt and Gibson's Ecological Optics; Imagery, Shepard's rotation and Kosslyn's scanning.

Ch 4 Memory: Structures. Atkinson & Shiffrin's information processing; storage capacity, duration, encoding, retrieval and interference; Paivio's Dual Code Theory, Tulving's multiple storage concepts.

Ch 5 Memory: Processes. Craik & Lockhart's Levels of Processing, refearsal, context, effort, encoding specificity, text processing, scripts, Loftus' schematic processing of events; storage, retrieval, recall vs recognition, the Bartlett tradition, implicit and explicit memory.

Ch 6 Knowledge: Structures. The lexicon, semantic priming; models of heirarchies, networks, TLC's, spreading activation;

ACT-R's, organization and production.

Ch 8 Language: Structures. Definitions, design features, phonemes, morphemes, gramar and linguistics, transformational grammar, deep-surface structure distinctions, nature vs nurture, Skinner vs Chomsky.

Ch 10 Language: Acquisition. Stages of development, memory and metamemory, development of reasoning.

Ch 11 Thinking: Reasoning. Logic and formal reasoning, rules of logic, validity, conditional reasoning; natural reasoning (Kahneman and Tversky), heuristics, biases, probability, and framing decisions; concept formation, artificial and natural, prototypes and stereotypes.

Ch 12 Thinking: Problem Solving. Gestalt stages, incubation, insight, representation, and creativity; domain-free problems and strategies, problem solving in knowledge domains, novice-expert differences.