Psychology 321
Dr. Crutcher's class
Review Questions for Exam 1 (Chapters 1-4)

The following questions should be useful in preparing for the exam. You can assume they will cover most of what will be on the exam; however, anything that we have covered in class or that is in the text could conceivably appear on the test.

1. Give a definition of cognitive psychology and be able to identify at least 2 reasons why we bother studying cognitive psychology.

2. Be able to identify and describe the diverse influences on the development of cognitive psychology (e.g. verbal learning, linguistics, computer revolution, communications theory, etc.). Be sure that you can describe how a given area influenced the development of cognitive psychology.

3. What is cognitive science? How would you distinguish it from cognitive psychology?

4. What is cognitive neuroscience? What are some of the techniques used by cognitive neuroscience to study mental processes? Be able to identify and/or recognize these techniques.

5. What is artificial intelligence?. Distinguish between strong AI and computer simulation modeling.

6. Know your terms. For example: ecological validity, introspection, behaviorism, Gestalt psychology, PET, MRI, fMRI, ERP, artificial intelligence, pure AI, computer simulation modeling, parallel distributed processing (PDP), bottom-up processing, top-down processing, serial processing, etc.

7. Be able to identify the 4 theories of pattern recognition (template, prototype, distinctive features, and recognition-by-components). Be able to describe how each works and to identify the strengths and weaknesses of each. Which is the dominant explanation currently? Sometimes a model will explain some types of data or tasks very well but not others.

8. What are bottom-up and top-down processing? Give examples of each type of processing. Describe how each is involved in pattern recognition. Why would pattern recognition be impossible without top-down processing?

9. Top-down processing is covered at length by Matlin and I spent considerable time on it in class. It plays a powerful role in cognitive processes. Be sure you are familiar with the studies discussed by Matlin and myself that provide evidence for top-down processing. Be able to give examples of your own of top-down processing and it's influence on pattern recognition in your everyday life.

10. Be able to define perception and distinguish perceptual processes from other higher order cognitive processes (e.g. memory). Be able to give examples of each. Which type of processes did Wundt's introspection technique focus on?

11. Be able to give a definition of attention. Describe the different aspects of attention

12. Distinguish between divided attention and selective attention. Be able to identify examples of each. Be able to come up with example tasks of your own that illustrate each type of attention.

13. What generally happens when people divide their attention between two channels as in a dichotic listening task? What sorts of information, if any, are registered or picked up from the unattended channel?

14. What is the Stroop Effect? What type of attention is it used to study? How would you explain the results of the Stroop Effect such as we observed in the lab we did in class? Be sure to use what you know about theories of attention and/or the controlled automatic processing distinction.

15. Describe the two main theories of attention and how they are similar and/or different (i.e. filter models and resource allocation models)?

16. Distinguish between <u>controlled</u> processing and <u>automatic</u> processing. Be able to give the distinguishing characteristics of each type of processing and examples of tasks that would depend on one or the other type of processing. Likewise, if I describe a task be able to identify which type of processing (one or the either or both) would be involved in carrying out the task (e.g. recognizing your name when you hear it spoken)

17. What is the effect of practice on attention? Give examples. How does practice influence controlled versus automatic processing? Be able to give an example of a controlled processing task that with practice can be converted to an automatic processing. Be able to give evidence that the task is initially controlled and later automatic (e.g. think about learning to type and later becoming a proficient typist).

18. What is the recognition by components model of pattern recognition? How is it related to the Distinctive Features Model? How are features and geons related?

19. Be able to describe the Atkinson and Shiffrin model of memory. What are the three parts of the model? Be able to draw a diagram of the system. Be able to discuss in detail the characteristics of the 3 different parts of the system and how they work(e.g. type of code for storage of information; duration of memory; etc.). You should also be able to explain what empirical evidence supports the theory as well as any evidence that argues against the theory.

20. Know what the recency effect and primacy effect are and how they are explained by the Atkinson and Shiffrin model of memory

21. How can you wipe out the recency effect? What experimental manipulation will remove the recency effect? What evidence shows the primacy effect reflects long-term memory.

22. What is sensory memory? Why do we need a sensory memory? What functions does sensory memory have?.

23. What evidence supports the existence of iconic memory? Discuss Sperling's research on the visual sensory store? Know the details of his procedure (e.g. partial versus full report procedure) and how this paradigm provided evidence for the duration of the iconic store.

24. Describe the classic findings on short-term memory. What were the findings regarding forgetting (i.e. decay versus interference), type of coding, and capacity? How were these findings changed by later research on short-term memory? For example, what about the idea that short-term memory used verbal or phonological codes to store information, how was this revised?

25. What evidence supports the idea that the memory codes in short-term memory are in large part verbal or acoustic in nature? What later evidence supported the idea that there are also visual codes for short-term memory?

26. Describe the research on short-term memory done by Brown/Peterson & Peterson using the trigram task. What did they have subjects do and what did they find? What did they conclude about forgetting in short-term memory and how it occurs? What later work or experimental findings changed these findings? How?

27. What is the capacity of short-term memory according to George Miller's classic research? How is this capacity limitation overcome? What is **chunking** or **recoding**?

28. We talked about the research on the digit span expert SF. What is the point of this research? What did the researchers find? What did this work show about short-term memory capacity and Miller's ideas? Can you also relate these findings to the notion of expertise talked about in the chapter on long-term memory?

29. Why is it difficult to estimate the capacity of short-term memory?

30. How did the research on digit span in different cultures change ideas about short-term memory capacity?

31. What is working memory? Describe the different parts of the working memory system and how they work. Be able to draw and label a diagram of the working memory system. What's the difference between working memory and short-term memory? Describe how the working memory theory built on and replaced the earlier short-term memory ideas. What findings provided evidence for the working memory model.