

COGS 105 Study Guide for Exam 3

The exam will be **entirely multiple choice questions**. However, to help focus your study, I include a list of key questions that you should be able to explain to a friend or family member or a stranger on the bus (to weird 'em out) if they were curious about cognitive science methods. I will be drawing questions from these topics in a similar spirit to these queries.

Exam 3 Focus: Career Issues and New Topics

- Be able to **calculate $P(\text{person})$ and $P(\text{person}|\text{gender})$** given the example slides in Week 11b (e.g., $P(\text{Chomsky}|\text{male})$).
- What is a **pragmatic inference task**?
- What is the “**Bayesian approach**” to cognition?
- Know at least **two critiques of Bayesian models**.
- What are the **stages** of Ph.D. application to post-Ph.D. jobs?
- What is the “academic route”?
- What **general steps** are needed to get into grad school?
- How do **Ph.D. and M.S. programs** differ?
- What is “**industry**”?
- What are some examples of how **COGS training from our class might feed into industry**?
- Imagine you are a **data scientist for a company**, using COGS-related skills. Engagement on your company’s website drops. How does the Yammer example help understand how to investigate?
- What is **HCI**?
- How does traditional **HCI contrast with the new UX approach**?
- What are some **cognitive biases that inform UX work**?
- What is **GOFAI**?
- What are the two **AI cultures** described in class? How do they differ?
- Why are **Braitenberg vehicles** instructive as simulations? How do they demonstrate simple rules generating complex behaviors?
- Briefly describe **behavior-based robotics**.
- What is the traditional rule concept? What is a **production rule**? How does it relate to virtual agents?
- Why is the **cloud** important to future AI and robotics?
- What is the traditional **modular approach**?
- How does the **connectome approach** differ from the modular approach?
- What is **diffusion-tensor imaging** and why is it important to the Human Connectome Project?
- Describe the **oddball task** used in EEG/ERP research.
- What is a **small-world network**? Why is it important to understanding the **efficiency of mental processing** in the brain?
- How do **neuropsychology, neuropsychiatry, and neurology** differ in emphasis?
- Describe what is a **neuropsychological battery of tests**.
- Why is it difficult to figure out the **cognitive constructs** underlying brain function?
- Briefly describe the **process approach**.
- How do **DLPFC and VPFC** differ in function?
- What is the “**Trail Making Test**”?
- How does the small-world network idea relate to new **possible measures for the aging brain**?