NSCI 401

Final exam questions

(Fall 2012)

1. What are the **mechanisms** underlying the generation of action potentials?
2. What does spike-triggered averaging allow us to do? Explain how it works and why it works.
3. How and why do cortical maps develop?
4. Why are Bayesian statistics such a powerful tool for neuroscience?
5. What do the impulse response and the superposition principle allow us to do? Why are they such powerful tools for linear systems theory?
6. Describe how Optimal Feedback Control works.
7. How do simple diffusion models explain decision making and how do these models work?
8. How could the brain compute priority maps?
9. Explain the mechanisms underlying associative learning. Is associative learning supervised or unsupervised?
10. Why is computational modelling such a powerful tool for neuroscience research?

Note: during the exam, there are ***no aids allowed***. Don't forget to bring your Queen's students photo ID to the exam!