

Biological approach exam
Multiple choice - December 7, 2021
Essay and short answer - finals period, Thursday, December 16, 2021

Multiple Choice exam (November 30)

The multiple choice exam will be composed of 50 questions drawn from the terms below. Studies are in bold. Final study preparation assignment due December 7.

Localization

Localization of function, **Broca's area**, Wernicke's area, aphasia. **Wilder Penfield - cortical homunculus** distributed v. localized function, strict v. relative localization, lateralization, **Karl Lashley, Sperry (1968), Gazzaniga (1967)**, split brain research

Neurotransmitters

Neurons (synapse, threshold of excitation, action potentials neurotransmitters, reuptake), neurotransmitters agonists, antagonists, SSRIs, **Crockett 2010, Fisher Aron and Brown (2005)**, dopaminergic pathway, **Freed et al (2001), Oved et al (2013)**

Neuroplasticity

Neuroplasticity, cortical remapping, **Merzenich et al(1984), Draganski et al (2004), Draganski et al (2006), Maguire (2000)**, sense substitution, **Paul Bach-y-Rita et al (1969)**, human echolocation,

Techniques used to study the brain and behavior

Neuroimaging, CAT scans, MRI, fMRI, blood oxygen level dependent signal (BOLD), spatial resolution, temporal resolution, Positron emission tomography (PET scans), Electroencephalography EEG (Brain waves), studies that use neuroimaging (**Draganski 2004 and 2006, Maguire 2000, Freed 2001, Fisher, Aron and Brown 2005**)

Hormones and behavior

Hormones, Oxytocin, **Romero et al (2014), Kosfeld et al (2005), Scheele et al (2012), De Dreu et al (2012), De Dreu et al (2011)**

Pheromones

Pheromones, **Lundstrom and Olsson (2005)**, androstadienone (AND), **Hare et al (2017), estratetrenol (EST), Cutler, Friedmann and McCoy (1998), McCoy and Pitino (2002)**, Criticisms of pheromone research

Genetics and behavior

Genotype v. phenotype, chromosomes, base pairs, gene, alleles, twin studies, family studies, adoption studies, **Kendler et al (2015), Scarr and Weinberg (1983)**, transracial adoption study, adolescent adoption study, molecular genetics, Falconer model, niche picking, **Bouchard and McGue (1981)**, influence of environment on gene expression, gene expression, functional product, transcription, translation, RNA, regulation of gene expression, methylation, epigenetic changes, behavioral epigenetics, **Weaver et al (2004)**, glucocorticoid receptors, glucocorticoid receptor gene, **Miller et al (2009), McGowan et al (2009), Kaminsky et al (2008)**

Evolution and behavior

Evolution, differential fitness, natural selection, **Chiao and Blizinsky (2010)**, gene-culture coevolution theory, kin selection theory, **Hamilton (1964), Madsen et al (2007), LeDoux (1996), Harlow (1958), Shaver and Hazan (1988)**, Theory of mind, **Call and Tomasello (2008), Curtis, Aunger and Rabie (2004)**, Criticisms of evolutionary explanations, Massive modularity v. neuroplasticity, speculations about the environment, testability, Assumptions about the linearity of development (exaltation), cultural variation, adaptation v. other evolutionary mechanisms, genetic drift, spandrels, **Gould and Lewontin (1979)**

Essay and short answer exam (finals)

Essay

Essays should be approximately 750 -1000 words in length and should include an introductory paragraph with a thesis that clearly indicates what the essay is about, several well developed body paragraphs and a conclusion.

Please support your observations with appropriately chosen quotations from the textbook and relevant studies. All sources used should be cited using the APA style that we discussed in class.

You will be able to use one single sided 8.5 x11 outline during the exam. The outline should contain all direct quotes you plan to use when answering the essay question.

Please pay specific attention to the command terms used and complete the essay as it is assigned.

Two of the following topics will be randomly chosen on the day of the exam. You will choose and write on **one of these two options**.

Evaluate one or more research methods used when investigating the relationship between the brain and behaviour. (5.21)

Discuss the effect of one or more neurotransmitters on behaviour. (11.20)

Discuss one evolutionary explanation of one behaviour. (11.19)

To what extent does genetic inheritance influence behaviour? (11.16)

The essay will be scored using the rubric below:

Criterion A: Focus on the question (2 marks)

To understand the requirements of the question students must identify the problem or issue being raised by the question. Students may simply identify the problem by restating the question or breaking down the question. Students who go beyond this by **explaining** the problem are showing that they understand the issues or problems.

Mark	Level descriptor
0	Does not reach the standard described by the descriptors below.
1	Identifies the problem/issue raised in the question.
2	Explains the problem/issue raised in the question.

Criterion B: Knowledge and understanding (6 marks)

This criterion rewards students for demonstrating their knowledge and understanding of specific areas of psychology. It is important to credit **relevant** knowledge and understanding that is **targeted** at addressing the question and explained in sufficient detail.

Mark	Level descriptor
0	Does not reach the standard described by the descriptors below.
1-2	The response demonstrates limited relevant knowledge and understanding. Psychological terminology is used but with errors that hamper understanding.
3-4	The response demonstrates relevant knowledge and understanding but lacks detail. Psychological terminology is used but with errors that do not hamper understanding.
5-6	The response demonstrates relevant, detailed knowledge and understanding. Psychological terminology is used appropriately.

Criterion C: Use of research to support answer (6 marks)

Psychology is evidence based so it is expected that students will use their knowledge of research to support their argument. There is no prescription as to which or how many pieces of research are appropriate for their response. As such it becomes important that the research selected is **relevant** and useful in **supporting** the response. One piece of research that makes the points relevant to the answer is better than several pieces that repeat the same point over and over.

Mark	Level descriptor
0	Does not reach the standard described by the descriptors below.
1-2	Limited relevant psychological research is used in the response. Research selected serves to repeat points already made.
3-4	Relevant psychological research is used in support of the response and is partly explained. Research selected partially develops the argument.
5-6	Relevant psychological research is used in support of the response and is thoroughly explained. Research selected is effectively used to develop the argument.

Criterion D: Critical thinking (6 marks)

This criterion credits students who demonstrate an inquiring and reflective attitude to their understanding of psychology. There are a number of areas where students may demonstrate critical thinking on the knowledge and understanding used in their responses and the research used to support that knowledge and understanding. The areas of critical thinking are:

- research design and methodologies
- triangulation
- assumptions and biases
- contradictory evidence or alternative theories or explanations
- areas of uncertainty.

These areas are not hierarchical and not all areas will be relevant in a response. In addition, students could demonstrate a very limited critique of methodologies, for example, and a well-developed evaluation of areas of uncertainty in the same response. As a result a holistic judgment of their achievement in this criterion should be made when awarding marks.

Mark	Level descriptor
0	Does not reach the standard described by the descriptors below.
1-2	There is limited critical thinking and the response is mainly descriptive. Evaluation or discussion, if present, is superficial.
3-4	The response contains critical thinking, but lacks development. Evaluation or discussion of most relevant areas is attempted but is not developed.
5-6	The response consistently demonstrates well-developed critical thinking. Evaluation or discussion of relevant areas is consistently well developed.

Criterion E: Clarity and organization (2 marks)

This criterion credits students for presenting their response in a clear and organized manner. A good response would require no re-reading to understand the points made or the train of thought underpinning the argument.

Mark	Level descriptor
0	Does not reach the standard described by the descriptors below.
1	The answer demonstrates some organization and clarity, but this is not sustained throughout the response.
2	The answer demonstrates organization and clarity throughout the response.

Short answer

Three of the following topics will be chosen randomly on the day of the exam. You will choose and write on **two of these options**. As you will not have access to notes during this part of the exam, no direct quotes are expected. Examples used to support your observations should be as specific as possible. Better responses will reference relevant studies.

Describe one twin or kinship study. (11.20)

Describe neuroplasticity, with reference to one relevant study. (11.19)

Describe one ethical consideration related to one study at the biological level of analysis.

Describe one study related to localization of function in the brain.

Describe the function of one hormone in human behaviour

The short answer question will be scored using the rubric below:

Markband	Level descriptor
0	The answer does not reach a standard described by the descriptors below.
1–3	The response is of limited relevance to or only rephrases the question. Knowledge and understanding is mostly inaccurate or not relevant to the question. The research supporting the response is mostly not relevant to the question and if relevant only listed.
4–6	The response is relevant to the question, but does not meet the command term requirements. Knowledge and understanding is accurate but limited. The response is supported by appropriate research which is described.
7–9	The response is fully focused on the question and meets the command term requirements. Knowledge and understanding is accurate and addresses the main topics/problems identified in the question. The response is supported by appropriate research which is described and explicitly linked to the question.