

## A.1 Course descriptions, Experiment 1.

### Course description 1

*(Psychology version)* Psychologists have long been interested in the topic of attraction and love. For example - why do people fall in love at first sight? How do feelings of love change the self and behavior? What predicts a happy and successful committed relationship? These questions will be debated in this survey course on the Psychology of love.

*(Neuroscience version)* Neuroscientists have long been interested in the topic of attraction and love. For example - why do people fall in love at first sight? How do feelings of love change the self and behavior? What predicts a happy and successful committed relationship? These questions will be debated in this survey course on the Neuroscience of love. Particular focus will be given to neuroimaging studies that point to the role of the midbrain in the experience of romantic love. Specifically, the ventral tegmental area and the medial caudate nucleus, associated with other forms of reward and motivation, are activated when thinking about a romantic partner.

*(Both versions)* Which title best describes the class?

- A. Mechanisms of Love
- B. Mystery of Love

### Course description 2

*(Psychology version)* Are some people inherently good or bad? Or do people change their moral behavior in different circumstances? This course will examine the psychology of morality. Topics will include the role of empathy and emotion in moral decision making, and the origin of "evil" that can be seen in acts of brutality and violence.

*(Neuroscience version)* Are some people inherently good or bad? Or do people change their moral behavior in different circumstances? This course will examine the neuroscience of morality. Topics will include the role of empathy and emotion in moral decision making, and the origin of "evil" that can be seen in acts of brutality and violence. Neuroscientists have also discovered that when contemplating moral issues, there is a particular pattern of activation in the medial prefrontal cortex, dorsal cingulate cortex, and superior temporal sulcus. These areas are related to self-knowledge and social perspective taking, and reveal the mechanisms of empathy that is essential to moral reasoning.

*(Both versions)* Which title best describes the class?

- A. Moral Mechanisms
- B. The Moral Compass

## A.2 Body-Soul Trade-off Dilemma, Experiment 1

### Scenario 1.

You have been chosen to go on a very important mission to Mars. You have no choice in this matter, you must go. But you can choose your means of transport. One method is teletransportation. You will step into a scanner here on earth which will destroy your brain and body, while recording the exact states of all your cells. This information will then be transmitted to a replicator on Mars. Travelling at the speed of light, the message will take three minutes to reach its destination. The replicator will create, out of new matter, a brain and body exactly like yours. The person on Mars will look like you, think like you, in fact be indistinguishable from you. He or she will certainly feel as though they have merely fallen asleep on Earth and then woken up on Mars. This method is very reliable. The other choice is to go by spaceship. This is very risky and there is a chance that the ship will not complete the journey and you will die in transit. But if you do successfully take the spaceship, then your body and brain won't at any stage have been destroyed.

### Scenario 2.

You have now fallen very ill, but scientists have almost found a cure for the disease you have. Unfortunately, you may die of the disease before the cure is perfected and ready to be used. But - scientists have developed a technique to 'deep freeze' humans, enabling them to be revived later with their memories and character intact. Once the cure for your illness is ready, doctors can unfreeze you and treat you. Although this process will preserve your physical body completely, there has been concern expressed by some scholars that it can damage the soul. Leading thinkers have reason to believe that the deep freeze will destroy the soul completely. You have two choices: The first choice is to let the disease take its toll. Your body will die, but your soul will remain intact. The second choice is to be deep frozen, then thawed and cured later. This will preserve your memories, character, and physical body, but may destroy your soul in the process.

- 1 I would strongly prefer to let my body die
- 2 I would moderately prefer to let my body die
- 3 I would slightly prefer to let my body die
- 4 I would slightly prefer to be frozen
- 5 I would moderately prefer to be frozen
- 6 I would strongly prefer to be frozen

### A.3 Dualism Scale

Please indicate how much you agree with each of the following statements.

<b>Strongly Disagree</b>	<b>Moderately Disagree</b>	<b>Slightly Disagree</b>	<b>Neither agree nor disagree</b>	<b>Slightly Agree</b>	<b>Moderately Agree</b>	<b>Strongly Agree</b>
[1]	[2]	[3]	[4]	[5]	[6]	[7]

- The mind is equivalent to the brain.\*
- It is impossible for science to ever have a complete understanding of the mind.
- One's thoughts, personality, preferences, and choices are all just a product of brain functions.\*
- Whether one is a good or bad person can be completely altered by changes in the brain.\*
- <sup>1</sup>Aspects of mind that science cannot explain are best explained by the soul.
- People have a non-physical soul (or spirit) that animates the physical body.
- A person's soul persists after one dies.
- Free will is an illusion produced by the brain.\*
- The mind interacts with the brain, but is separate from brain.
- In the future, it may be possible to know someone's personality by looking at their
- brain activity.\*
- The true self is not governed by the brain, but by a person's soul.
- <sup>2</sup>The mind is a non-physical property
- <sup>2</sup>In the future, it may be possible to know exactly what another person is thinking by looking at their brain activity.\*
- <sup>2</sup>I believe the mind and soul are the same thing.

\* Reverse-scored items

<sup>1</sup>Items used in Experiment 1 only

<sup>2</sup>Items used in Experiment 2 only

#### A.4 Neuroscience Manipulation, Experiment 2

##### Passage 1 : Free Will

Using brain scanning techniques, scientists have shown that people experience a feeling of FREE WILL in response to electrical activity in the brain. For example, when a person must respond to a question by moving a body part (such as a finger), electrical activity in the motor cortex occurs even before the person is aware of the intention to act. This is the most advanced neural research that has been conducted on the sources of conscious will.

*(STRONG CONDITION)* Neuroscientists say that these results have answered many important questions about conscious will. For example, it can explain what creates the feeling of free will, and the true causes behind human action. *(WEAK CONDITION)* Neuroscientists say that many questions about conscious will have been left unanswered, however, including how this activity creates the feeling of free will, and the true source behind human action.

*(Both versions)* Which title best describes the previous passage?

- A. Determinism in the brain
- B. Personal control of action

##### Passage 2: Love

Neuroscientists have found that when a person is in LOVE, certain areas of the midbrain are activated. Specifically, when thinking about the loved one, areas in the brain associated with reward and motivation (the ventral tegmental area and the medial caudate nucleus) become activated. This research has produced the most up to date analysis on the neuroscience of love.

*(STRONG CONDITION)* Neuroscientists note that these results can answer almost all the scientific questions we have about love. For example, it can explain when and with whom we fall in love, and explains what creates the feeling of love itself. *(WEAK CONDITION)* However, neuroscientists note that these results only raise more questions than they answer. For instance it does not explain when or with whom we fall in love, and cannot explain what creates the feeling of love itself.

*(Both versions)* Which title best describes the previous passage?

- A. The Construction of Love
- B. The Mystery of Love

##### Passage 3: Moral Judgment

Neuroscientists have discovered that when contemplating moral issues, there is particular pattern of activation in the medial prefrontal cortex, dorsal cingulate cortex, and superior temporal sulcus. These areas are related to self-knowledge, and social perspective taking. Scientists say this particular pattern shows how empathy and self-concept are crucial elements in moral reasoning.

*(STRONG CONDITION)* Scientists say that this neural activity can fully explain many key questions about human morality such as how we distinguish right and wrong, make moral decisions, and make

moral judgments of others. (*WEAK CONDITION*) However, scientists say this neural activity still does not explain many key questions, such as how we distinguish right and wrong, make moral decisions, and make moral judgments of others.

(*Both versions*) Which title best describes the previous passage?

- C. Moral Mechanisms
- D. The Moral Compass