✗ Which of the following logical entailments is true? * 0/1

- ○ Sentence 1 entails Sentence 4
- ○ Sentence 6 entails Sentence 3
- ○ Sentence 5 entails Sentence 6
- ○ Sentence 2 entails Sentence 5
- ◉ Sentence 6 entails Sentence 2 ✗
- ○ Sentence 1 entails Sentence 2

✓ There are other logical connectives that exist, other than the ones discussed in lecture. One of the most common is "Exclusive Or" (represented using the symbol ⊕). The expression A ⊕ B represents the sentence "A or B, but not both." Which of the following is logically equivalent to A ⊕ B? * 1/1

- ○ (A ∨ B) ∧ (A ∧ B)
- ◉ (A ∨ B) ∧ ¬ (A ∧ B) ✓
- ○ (A ∧ B) ∨ ¬ (A ∨ B)
- ○ (A ∨ B) ∧ ¬ (A ∨ B)

✓ Let propositional variable R be that "It is raining," the variable C be that "It is cloudy," and the variable S be that "It is sunny." Which of the following a propositional logic representation of the sentence "If it is raining, then it is cloudy and not sunny."? * 1/1

- ○ $(R \rightarrow C) \land \neg S$
- ○ $R \rightarrow C \rightarrow \neg S$
- ○ $R \land C \land \neg S$
- ◉ $R \rightarrow (C \land \neg S)$ ✓
- ○ $(C \lor \neg S) \rightarrow R$

✓ Consider, in first-order logic, the following predicate symbols. Student(x) represents the predicate that "x is a student." Course(x) represents the predicate that "x is a course." Enrolled(x, y) represents the predicate that "x is enrolled in y." Which of the following is a first-order logic translation of the sentence "There is a course that Harry and Hermione are both enrolled in."? * 1/1

- ○ ∀x. Enrolled(Harry, x) ∧ ∀y. Enrolled(Hermione, y)
- ◉ ∃x. Course(x) ∧ Enrolled(Harry, x) ∧ Enrolled(Hermione, x) ✓
- ○ ∀x. Course(x) ∧ Enrolled(Harry, x) ∧ Enrolled(Hermione, x)
- ○ ∃x. Enrolled(Harry, x) ∧ ∃y. Enrolled(Hermione, y)
- ○ ∀x. Enrolled(Harry, x) ∨ Enrolled(Hermione, x)
- ○ ∃x. Enrolled(Harry, x) ∨ Enrolled(Hermione, x)

Comments, if any