

**Quantum Mechanics II: PHYS 314 (Spring 2021)**  
**Quick quiz 11**

Chris Monahan  
William & Mary

**Instructions**

These quick quizzes are low-stakes assessment tools to help cement your understanding of our material. They will help you remember the key facts and can serve as a study guide to help you focus on material you are less familiar with. These quizzes do not contribute to your grade and are for your own use.

1. **Without looking at your notes or the textbook, and without consulting with your neighbour**, write your answer to each question in the **first column**.
2. Discuss with your neighbour and use your notes or the textbook as needed to answer each question and write your answers to each question in the **second column**. You should complete the second column, but do not add anything to your first column.

There are four questions.

**Question 1**

Write down the expression for the energy levels of hydrogen, including the Bohr energies and fine structure effects.

|

**Question 2**

What are “good quantum numbers”?

|

**Question 3**

What are the good quantum numbers for hydrogen, in the presence of the fine structure?

**Question 4**

What are the good quantum numbers for hydrogen, in the presence of the hyperfine structure?

