

# CPSC 259: Data Structures and Algorithms for Electrical Engineers

## PeerWise

You will be generating your own multiple-choice questions and sharing them with one another. Our aim is to empower you to think about ways of evaluating understanding of a learning goal while having the opportunity to gauge your own understanding of it in the process. Use of PeerWise enables you to get immediate feedback on your work and allows you to compare yourself to your peers. In addition, by using crowdsourcing, we can create a pool of high-quality multiple-choice questions that can be used in the future offerings of the course.

PeerWise provides a number of learning opportunities to students:

- **Designing questions:** Generating a question requires students to think carefully about the topics of the course and how they relate to the learning outcomes. Writing questions focuses attention on the learning outcomes and makes teaching and learning goals more apparent to students.
- **Choosing distractors:** The act of creating plausible distractors (multiple-choice alternatives) requires students to consider misconceptions, ambiguity and possible interpretations of concepts. Writing explanations: Explanations require students to express their understanding of a topic with as much clarity as possible. This acts to develop their written communication skills and deepen their understanding.
- **Answering questions:** Answering questions reinforce learning, and incorporate elements of self-assessment. Students receive immediate feedback and are shown how others have answered the same questions, allowing them to gauge how well they are coping in the course.
- **Evaluating quality:** Evaluating existing questions incorporates higher-order cognitive skills, requiring a student to consider not only the content, but what makes a particular question more effective than other questions

### Registration

- Start by visiting PeerWise here: [http://peerwise.cs.auckland.ac.nz/at/?ubc\\_ca](http://peerwise.cs.auckland.ac.nz/at/?ubc_ca)
- If you have not used PeerWise before, just click the "Registration" link and follow the prompts. All you need to do is choose a user name and a password for your PeerWise account. If you have used PeerWise before, simply log in and then select "Join course" from the Home menu.
- To access our course, "CPSC 259 2015W1", you will need to enter two pieces of information:
  - Course ID : **11538**
  - An Identifier: Your unique identifier is available on Connect under Grades - 'PeerWise Identifier'
- Once logged in, you might get a prompt asking you to register an email address. Follow the instructions on screen to enter your verification code and activate email notifications.

### Creating questions

To create a new question:

1. Click on the course name: CPSC 259 2015W1
2. Under **Your Questions** > click on **View Questions** and you should be redirected to a new page

3. The Create Question page is pretty self-explanatory and allows you to create a new multiple-choice question. You can even add images and videos to your questions. Please try and keep media file sizes to a minimum
4. You can choose to preview your question before sharing it with others. Alternatively, you can save your question as a draft and complete and share it later
5. Once you have previewed your question on the preview screen, you can click on **Save Question** to share the question with your peers

Note: Since questions are shared with your peers, please be respectful when posting your questions and do not post inappropriate or irrelevant content.

If you have any questions about registration or how to create/view questions please contact the lead TA and CC your instructor.

## Assessment

Your PeerWise grade will be computed as follows:

### 2% Authoring and answering questions

There will be a total of 3 calls for authoring and answering questions. Each call will have some learning goals and a duration period associated with it. To receive full marks for each round, you would need to do the following during the duration period associated to the call:

1. Author a multiple choice question that satisfies the following criteria:
  - The question is clearly worded and does not contain obvious spelling or grammatical errors.
  - The question correctly targets one or more of the learning goals associated with the call.
  - There is only one correct answer to your question, and you have correctly identified this answer.
  - All other options must seem plausible – avoid using “silly” alternative answers.
  - Your explanation must be clear and thorough. Imagine that someone looks at your question and asks you: “I don’t understand this – can you explain it to me?” Your explanation must be in your own words, and should be helpful to someone who answers your question incorrectly.
2. Answer and rate at least 15 questions. You are strongly encouraged to evaluate the questions you answer, and when appropriate provide constructive comments.

### 2% Active Participation

Your PeerWise active participation grade will be computed as a combination of your “Answer Score” and “Reputation score”.



• **Reputation Score:** Your reputation score is an approximate measure of the value of your contribution to others. The individual components of your score are based on the questions you have written, your answers to questions, and your evaluations. In general if you write useful high quality questions and comments, answer questions thoughtfully and rate questions fairly and accurately, your score should increase over time.

• **Answer Score:** Your Answer score increases every time you answer a question correctly (based on the answer the question author suggested was correct and how others have answered the same question). Your

answer score decreases by a small amount every time you answer a question incorrectly. The exact number of points awarded is displayed as soon as you choose your answer and may vary per question.

To obtain full active participation mark, you would need to earn a minimum "Reputation score" of 500 and a minimum "Answer score" of 500. This will be quite easy to achieve if you do the following:

- Author questions that other students rate highly
- Answer questions (starting early and answering before other students results in a higher score)
- Rate questions (starting early and rating before other students results in a higher score)

### **Up to 1% bonus mark**

If your "total reputation score" is higher than 600, then we will use the following formula to compute your bonus mark, which will be added to your final course grade.

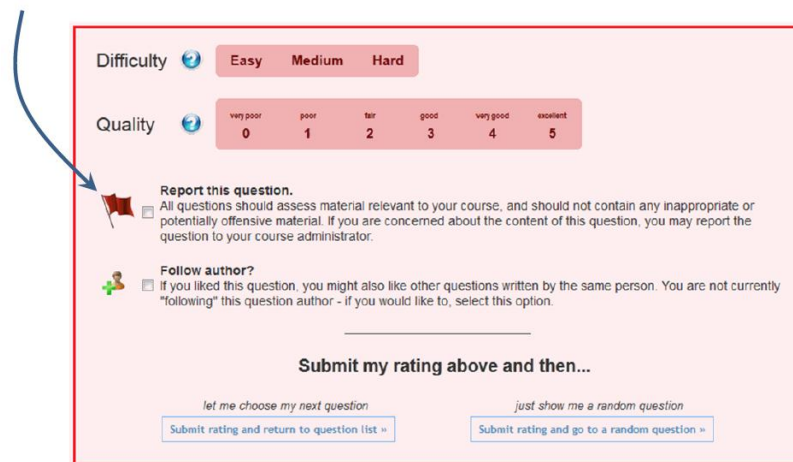
$$1 - \frac{100}{score - 500}$$

For example, a student with a "total reputation score" of 1000 will receive a 0.8% bonus.

The overall intention is for you to learn in a social environment and have fun with it. Writing good questions and explaining their answers are excellent ways to reinforce course material and written communication. If everyone puts energy into developing high quality and relevant questions, the repository will become a valuable revision resource.

### **Penalties**

Poorly designed questions will misguide other students and waste their time, so students who post question(s) that are obviously irrelevant or well below the quality expected of them will receive a penalty, and can only earn as much as 50% of the grade associated with PeerWise. Please help us in identifying incorrect or inappropriate questions by flagging them when you rate the question. The teaching staff will review all of the flagged questions and makes an ultimate decision on whether or not the author should be penalized.



The screenshot shows the PeerWise question rating interface. At the top, there are two rows of buttons for rating: "Difficulty" with "Easy", "Medium", and "Hard" options; and "Quality" with a scale from "very poor" (0) to "excellent" (5). Below these are two sections: "Report this question" with a checkbox and a red flag icon, and "Follow author?" with a checkbox and a plus icon. At the bottom, there are two buttons: "Submit rating and return to question list >" and "Submit rating and go to a random question >". A blue arrow points to the "Report this question" checkbox.

### **How do I write a good multiple-choice question?**

- Avoid spelling and grammar mistakes.
- Avoid trick questions - do not write questions where it is unclear what you are testing. Rather than trying to hide the correct answer behind a trick, ask a question that really determines whether or not someone understands an important concept.
- Writing the distracters is probably the hardest part. Your distracters should be plausible and not easily dismissed as incorrect or illogical. This makes answering the question by process-of-elimination more difficult. You want to test people on what they know, not their ability to simply recognize an incorrect answer.
- Don't forget to write a clear explanation as to why the correct answer is correct, and ideally why the incorrect answers are incorrect. These questions are a great opportunity for learning, but only if you provide some guidance about the correct answer.
- Don't rush your question – writing a good MCQ is challenging, even for instructors!

### **How should I evaluate other students' questions?**

You should look specifically for (and leave feedback about):

- Question that are unclear. Occasionally this is due to the grammar, but may also reflect a complex topic. This problem may show up in the question, in the alternative choices, the answer explanation, or any combination of these.
- Sometimes there will be more than one right answer – or no right answer. This is more common than you might think! It's occasionally due to a problem in the writing of the choices, but it is sometimes because the question was too complicated.
- Sometimes the question is too easy. The alternatives might be unrealistic and too easy to eliminate.
- When you make suggestions, try to be specific. For example you might suggest that the question be worded in a different way and provide that alternate wording, or you might suggest that one of the choices be replaced with something that makes the question more challenging.
- Be constructive and polite. When possible point out what was good about the question first, and then make suggestions.

And remember to report any questions that you would like a lecturer to look at closely.