A good strategy is to spend about 7 hours per week on bio 25/26 (or any class for that matter). That means at least **one hour per day** which should include class prep time and after class note processing time:

I. Preparing for class:
   a) Getting the “big picture”:
      a. Your **syllabus** is a great resource. It provides the major topics, themes or concepts that are going to be covered in the course.
      b. You should spend time every week figuring out how these major themes and concepts are linked. For example:

```
composed of                                creates
Global ecology                             Biodiversity
Ecosystems                                defined by
```

      c. To prepare for a lecture, you should **review notes** from your last two lectures (~10 minutes) before you even open your text book.
      d. Spend a couple minutes outlining the main concepts addressed in these two lectures in your own words. Think about how these concepts link together and write down any questions that come up during your review.

   b) Chapter reading:
      a. Your reading should give you a basic outline of what the next lecture is going to be about. You should **not** be reading in depth at this stage.
      b. Read the **title page** and **key concepts** first (map them out on paper). Take a few moments to think about the chapter title (which is the main theme/topic/concept). Have you encountered the subject before or does it remind you of another concept/topic? What do you remember or know about it?
      c. Next, read the chapter **summary** or overview in detail! This section usually highlights the key concepts and their importance or relevance to the subject. Ask yourself ‘**why**’ questions: why is this significant? Why is this process important? Why is this step relevant? If this process/cycle doesn’t occur what are the consequences? Etc.
      d. Finally, **skim** through the chapter **text** paying attention to the diagrams and tables because they are usually great summaries of the text.
II. After class:

a) Take class notes and/or power point handouts and open up your textbook to the relevant chapter. Use your chapter text to fill in gaps or to add in additional information to clarify concepts or details that may have been neglected or rushed through during lecture.

b) Always write down any questions that come up during your note processing and highlight anything that remains unclear or confusing so that you can ask your TA and/or professor for clarification.

c) Where figures or tables from the textbook are used, make a note of the page number in your notes and write out the figure heading if this hasn’t been included in the slides. This will help to place you in context.

d) Write a brief summary in your own words (based on the chapter reading and your notes) on the significance of the process(es) or structure(s) represented in the figures/tables and (where applicable) the concepts addressed therein.

e) You should spend at least 30 minutes or more on note-processing after lectures (depending on the complexity and your comprehension of the material) and you should try to do it within 24 hours of the lecture.

III. On the weekends:

a) Take an hour or so to reflect on the lectures covered during that past week. Use your syllabus and go over your notes and class prep outlines and then try to find the links and connections between the concepts or themes addressed.

  o Why are you following that lecture sequence?
  o Is there a significance to the sequence?
  o Are there connections between lectures?
  o How could you synthesize the various concepts or themes addressed that week?
  o How do they fit into previous weeks lectures?
  o Try to come up with exam questions (use the concept questions and discussion problems is the back of your chapters as guidelines).
  o For each question underline the most important words and ask yourself what concepts are being address with that question.
  o What is the purpose of the question? what does the professor expect you to know to answer the question?

b) At the back of your note book, draw a table (see below; or you can use flash cards for the same purpose). Write down new terms introduced that week (e.g. glycolysis, carbohydrate, enzyme, etc.) with definitions and functions where applicable. Some tables in the textbook can be good summaries and references for these terms.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enzyme</td>
<td>A protein catalyst</td>
<td>Used to speed up and control biological reactions</td>
</tr>
</tbody>
</table>
• This is a useful practice because when you have, for example, 10 minutes to spare while riding the bus between East and West campus, or while you’re waiting for the class to begin, you can be continually reviewing these terms and therefore reinforcing your knowledge.

• The same methods can apply to labs. It’s always a good idea to reinforce lab and lecture knowledge with each other. Labs can provide great clarity for concepts mentioned in lecture and visa versa. Remember there is a reason why a lab portion is required for this biology class. It is not supposed to be treated as a ‘separate’ course.

IV. Preparing for exams

a) It’s a good idea to start preparing for your bio exam at least one week in advance (obviously the earlier you start the better). The first thing that you should do is to gather all your lecture notes and outlines, handouts and course syllabus:

i. Create a study guide by outlining each lecture (this is to familiarize yourself with all the material that will be covered on the exam; your syllabus is key here):

   1. Briefly read through your notes to familiarize yourself with the material that will be covered on the exam. You should not be “studying” at the point because you are just trying to get an overview of the material.
   2. What is the subject or main concept (usually the title of the lecture)?
   3. What are the key concepts under this subject (usually subheadings)? Write these down leaving spaces between them. Make a note of where these concepts are covered in your textbook chapters (page numbers).
   4. In the spaces list the most important figures, equations, tables etc., related to these concepts (note where they are in the textbook)
   5. After you have set up your lecture outline, think about how these key concepts are connected or related and why they are significant within the context of the main subject/concept.

Example:

Date: Oct 18

Cellular Respiration I (Chapter 9, pg. 177)

1. Overview (pg. 178)
   a. Function = to produce energy (ATP) for cells to function (pg. 179, Figure 9.1 and 9.2)
   b. Redox reactions (pg. 179-180)
      - gain an electron
      - \( C_6H_{12}O_6 + 6 O_2 \rightarrow 6 CO_2 + 6 H_2O + \text{energy} \)

2. Processing glucose (pg. 180, Figure 9.4!)
i. Glycolysis (pg. 180-181)
   - reduce glucose to pyruvate
   - function = release energy (NADH + ATP)

ii. Krebs Cycle (pg. 180 – 181)
   - pyruvate further reduced to CO₂
   - function = further release of energy (ATP + NADH + FADH₂)

iii. Electron Transport Chain (pg. 182; Figure 9.5)
   - creates a proton gradient
   - chemical energy transferred from glucose to ATP via NADH and FADH₂

ii  **Self-assess** how well you know the material:

1. After you have set up your study guide go back to each of the lecture outlines and assess how well you know each of the key concepts
2. Highlight those that you are the most unfamiliar with or confused about.

iii  **Study strategy**:

1. Most students are more inclined to start with and spend the most time on concepts or subjects they are the **most** familiar with or confident in because this represents a source of comfort and control. It is more effective to start with studying the subjects or concepts that you are the **least** confident in because at the beginning of your study period you are less stressed, less tired and your brain is more ‘fresh’ in comparison to the night or day before the exam. This also allows you time to ask professors and TAs for clarification if the material still remains confusing.
2. It’s also a good idea to search the web for additional information or diagrams on concepts/topics you may need clarification on.
3. Once you have a good grasp of the material, use practice exam questions, old exams and also concept and discussion questions at the back of chapters to test your knowledge.
4. The night before the exam, review your lecture outlines and the corresponding key figures, tables, equations etc. Review how all the key concepts are related and why they are significant. Review your table of terms and next to each jot down which subject/key concept they fall under.