**Steps for writing a case study – your final project**

**Overall project goal:** Make a clear link between the structure and function of a protein that plays a critical role for a specific biological function.

You will have completed several case studies prior to any due dates for the final project. Your final project will be, as a team, to generate a case study of your own for the class. Ultimately, a well-designed and completed case study has the potential to be published on MolCaseNet or on QUBEShub.

**Individual** – you will start this project as an individual participant. Each student will generate some basic information for a case study. The class will then be shared with other students. After previewing and a classroom discussion, students (during the class) will rank their top-3 preferred case studies and groups will be formed.

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Individual Expectation** | **Points** | **Due** |
| 1 | Proposed protein structure/hook (disease?) | 10 | Mon, March 21 |
| 2 | Read and rank (top 3) case studies |  | Wed, March 23 (in class) |
|  | **Groups will be assigned by March 25** |  |  |
|  | **Group Expectations** |  |  |
| 3 | Open a GoogleDrive folder\* for shared papers, written documents, images | 5 | Wed, March 30 |
| 4 | Progress | 10 | Sometime between April 16 and April 22 |
|  | You will also be expected to meet with the instructor during the preparation – times will be scheduled | | |
| 5 | Draft of case study (group - with minimum of 3 parts) | 20 | Wed, April 27 (noon) |
| 6 | Infographic (group) | 10 | Mon, May 2 (noon) |
| 7 | Peer review of other case study (individual) | 10 | Mon, May 2 (noon) |
| 8 | Final draft of case study | 50 | Sat, May 7 (4:30 pm) (scheduled final time) |

\*GoogleDrive folder must be shared with the instructor by March 28 and remain shared throughout the duration of the assignment. This allows the instructor to monitor your progress throughout the assignment. Work MUST be done in a GoogleDrive document, not done separately and uploaded.

+Sometime between April 16 and April 22, the instructor will review the GoogleDrive documents to assess progress. All cases will be reviewed during the same day and assessed.

Proposed protein structure/hook (individual assignment – due by Monday, March 21 @ 10 pm)

Individually, you should identify a protein structure and a disease or story (hook) that you are interested in exploring. *The hook will be an important part for publication, but may not be something that is easily attained in this semester.*

1. Gather one (or more) scientific articles and generate a brief (no more than 250 words) summary of the question to be addressed by the case study and protein structure
   1. Ask yourself what disease or protein do you find interesting and what to learn more about
2. Provide at least ONE PDB file to analyze – briefly describe what about the structure is a) interesting and b) can be used to teach about the structure
   1. Include a screen capture of the PDB file that is labeled with structures of interest
      1. You do not need to manipulate the image (other than rotate to get a good view)
      2. You can label the image in another program (e.g., Powerpoint) or hand-write the information and upload a scanned version.
   2. Having a PDB file with and without a drug bound may help with your case exploration
3. Upload a single document with the information (written statements and image) – this will be shared with the entire class.
4. You will need to read over the other student submissions to have an engaged discussion on Wednesday, March 23 during class.

*We will have one for each student in the class and will choose from those stories and establish groups.*

**Group** – working in groups of 2 to 4 students, you will generate a protein visualization case study with at least 3 parts.

Topics will be chosen (or assigned) around March 25.

Case study

Your case study should be similar in format to the case studies that were used in other portions of the course. The submitted case study should be

* at least three case study parts, with at least two parts exploring the PDB structure
  + these parts should be submitted in both a student (blank) and key (answers) formats
    - at least 2 questions per part
    - at least 10 total questions (among the 3+ parts)
  + cases should outline the steps needed to explore the structure
  + it will be preferable if the program used is Mol\* (there are other formats, but this is the format we have used through RCSB.org)
* teaching notes – this should include what information is necessary for the teacher prior to starting this case study
* at least one primary literature article should be submitted (not just a link)
  + this article should inform the case study that is developed
  + the entire article does not need to be used (read or assigned), but what is used should be important in the case
* at least one review article should be available (and submitted)
* optional
  + ideally, a news article would be useful as an intro to the ‘hook’
  + if available, a video story would be good – use YouTube or other online resource to identify a potentially useful video
* a document with links to relevant websites for information regarding the case
* infographic highlighting the purpose of the case study, with relevant images and the importance of those images (separate assignment)
  + you can use Visme as done earlier in the semester or PowerPoint or another program
  + file should be shared as .jpg or .pdf

GoogleDrive folder – a GoogleDrive Folder should be opened with all members of the group and the instructor no later than Wednesday, March 30. This drive should be used for sharing papers that need to be read, creating the case study, and loading images. ALL work should be loaded into the GoogleDrive. Sometime the week between April 16 and April 22, the drive will be assessed for progress – all folders will be assessed and all participation will be assessed.