Ideas on How to Study for a Proof-Based Course   **Justin Wyss-Gallifent**

Here is a list of ideas for when you're at a loss for what else to do, or how to get started.

1. For every definition know a list of things which satisfy the definition and things which don't, and be prepared to prove these are true.

2. For every theorem of the form $A \to B$ ask yourself whether $B \to A$ is also true and if not, do you know a counterexample?

3. For every theorem of the form $(A_1 \wedge A_n \wedge ...) \to B$ ask yourself where each of A_i is used in the proof, whether the theorem is true if each A_i is removed and if not, do you know a counterexample?

4. For every theorem think of an example which the theorem applies to.

5. For every definition think of things which you can conclude if you have that definition. For example if you know A do you have theorems of the form $A \to$???.

6. For every definition think of things from which you can conlude that definition. For example if you need to prove A do you have theorems of the form ??? $\to A$.

7. Memorize proofs to ingrain methods.

8. Look for common themes in proofs. Do many proofs reference the same fact or same method? If so then that fact or method is probably quite important.