

# Common Questions about Candidacy in Chemistry

Prepared by the Chemistry Graduate Studies Committee (CGSC) Student Reps

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## Choosing a committee

### **What is the process for selecting a committee?**

Your committee will be assembled sometime near the end of your fifth term (typically November or December of the second year). The first committee member is your research advisor. For the other committee members, the Graduate Program Coordinator will send a committee selection form to be printed and filled out. On it, you will list three in-field faculty (in CCE) and three out-of-field faculty (typically in CCE, but potentially in other divisions) and have your advisor sign the form. Note that your advisor may want to help you choose potential committee members before signing the form. This form should then be turned in to the Graduate Program Coordinator, who will assign the committees. These assignments are based on your preferences and the number of students each faculty member has in their group from the same cohort.

### **Should I reach out to faculty before listing them as possible committee members?**

No, with the exception of non-CCE faculty (see below), it is not necessary to reach out to faculty before listing them as possible committee members.

### **When should I have my committee selected?**

Your committee selection preferences need to be made before you set your candidacy exam. It is advised you turn in your selection form as soon as possible, however, so you are more likely to be assigned your first choices.

### **What if I have multiple advisors?**

If you have multiple advisors, you will still need two faculty who are not your research advisors to be on your committee. That is, if you have two research advisors, your second advisor will be a fourth member of the committee.

### **What if my advisor is outside of chemistry?**

If your advisor is outside of chemistry, the other two members of your committee must be chemistry faculty.

### **What if I want a faculty member from outside CCE to be on my committee?**

If you want a faculty member from outside CCE to be on your committee, they will automatically be listed as the out-of-field member, regardless of how closely aligned their own research is with yours. In this case, you should ask the non-CCE faculty member in advance whether they'd be willing to be on your committee.

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## **Written documents**

### **What written documents are required for the candidacy exam?**

There are three (3) written documents required for the candidacy exam in chemistry: two original research propositions (also called props or proposals) and a research report. One proposition must be out-of-field, or outside the immediate field of your thesis research. The other should be in-field, or something you could imagine your research group(s) pursuing in the future. Your research report should describe your research progress and accomplishments to date, as well as your plans for future research.

### **What counts as in-field and out-of-field?**

The in-field proposition should be about something within your subdivision (e.g. physical chemistry) of chemistry and can be a topic you could envision your research group pursuing in the future. However, it cannot be simply the next logical step in your research or that of other members of your research group. It must also be an idea that is clearly original to you.

The out-of-field proposition should be about something that clearly would not be undertaken by your research group. Preferably, your out-of-field proposition will also fall within a different subdivision from your own (e.g. if you are in physical chemistry, you might write about a problem in biochemistry).

You are encouraged to run your proposition topic ideas by your advisor or another committee member before writing to make sure they fall within your committee's expectations of in-field and out-of-field.

### **Should the in-field proposition be a continuation of work done before candidacy?**

No, the in-field proposition should not be a continuation of work done before candidacy. While the topic can be something you can envision your research group working on in the future, it should not be the next logical step in your research or that of any other members of your research group.

### **What are the page limits for the written documents?**

Both propositions are limited to 15 double-spaced pages. The research report is limited to 30 double-spaced pages.

### **Do references count toward the page limits?**

References, abstracts, cover pages, and tables of contents *do not* count toward the page limits for the written documents. All body text, equations, tables, and figures *do* count toward the page limits. If you are uncertain whether something counts toward the page limit (e.g. large tables, experimental procedures, or sequences of plots that might be included in an appendix), ask your advisor or committee chair.

### **Who can you ask to proofread your props?**

You can ask anyone to provide feedback on your props: groupmates, other chemistry students, grad students outside CCE, friends at other institutions. Some advisors also expect to provide preliminary feedback on props, so ask your advisor whether you should send them drafts in advance of submitting your documents to your committee.

### **What should be included in the research report?**

What is expected in your research report might vary by committee, but in general, you should include an introduction to your field of research, descriptions of the work you've done so far, results illustrated by figures and tables, and a description of your plans for research contributing to your thesis work post-candidacy.

## **What if you don't have results for the research report?**

*Having publishable results is not necessary*, but you should include some evidence that you've made progress and you have been thinking critically about the research problem you are investigating. If you feel you don't have sufficient results, present any tables or figures from steps you've taken in your research so far, and consider including a section explaining the challenges you've faced in your work and how you plan to overcome them. One of the goals of candidacy is to ensure that you are working on a project that will result in a viable PhD, so this is an excellent opportunity to receive feedback and assistance from your committee.

## **When and how do I submit my written documents to my committee?**

Your written documents should be submitted to your committee no later than one week before your candidacy exam. The propositions and research report should be bound together into one physical document that you give to each committee member. You might also consider sending an electronic version, especially if you've left your written documents in your committee members' mailboxes.

To bind your documents, print out four copies of each of your documents, one for each of your committee members and one for yourself. *Make sure your margins are large enough to accommodate the binding.* You might also include a cover page (it looks nice, and it easily allows your committee to see who submitted the document). Once you've assembled each packet of documents, take them to Graphic Resources, located in room B128 of the Keith Spalding Building (corner of S Wilson and E California, next to Cahill). The most cost-effective method of binding is Velo binding. Alternatively, you can simply email a PDF of your complete report (including title page and table of contents) to [grorders@caltech.edu](mailto:grorders@caltech.edu) and request four Velo-bound copies. They will email you when your documents are ready for pickup.

## **Can I look at the written documents of people who have already gone through candidacy?**

Yes! As long as the ideas you write about are your own, you are welcome to reference other people's candidacy documents for ideas about formatting, organization, and level of detail. Many students ask their research groupmates for their documents, but you can also look at examples in the office of the Graduate Program Administrator, especially if you are part of a group that has recently started.

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## The oral exam

### What questions will I be asked about my props?

The questions asked about your props will depend heavily on your committee, but typically you are asked to summarize the project outlined in the proposition. You might also be asked to defend the significance of the project, describe the next steps, or state your hypotheses and reasoning behind them. Your committee might also ask about what they perceive as weaknesses and have you defend them or discuss how you would strengthen your argument. Ideally, you will leave your candidacy exam with a clear understanding of the strengths and weaknesses of your propositions and advice for how to further improve the quality of your writing and ideas.

### Do you have to give a presentation about your research?

Typically, the only presentation about your research in the exam is a brief summary of your research project(s) and your plan for the rest of your thesis work. However, some committee chairs might request there be a formal presentation (e.g. with slides) as part of the exam, so you should ask your chair what their expectations are.

### Do you have to prepare slides for your exam?

Typically, slides do not need to be prepared for the exam. However, you should ask your committee chair what their preferences are.

### What should you bring to the exam?

You should bring a copy of your written documents for yourself and a pen so that you can make notes as necessary. You should ask your committee what materials are allowed, but you might bring additional notes or literature you anticipate needing to consult.

### How long does it take to prepare for candidacy?

The amount of time required to prepare for candidacy depends on your workflow and the expectations of your advisor. Some people stop doing research for 3-6 weeks preceding the deadline to submit their documents and write everything over that time. Others might start earlier and work on their props and research report little by little over several months.

### **What is the format of the exam?**

The format of the oral exam depends on your committee. You should allow for up to two hours for the exam. Typically, the bulk of time is spent discussing your research with less time given to each of your props. After your committee is done asking you questions and discussing your work with you, you will be asked to leave the room while they talk about your progress and what they think are the places for most improvement. You will then be invited back into the room to receive feedback, the results of your exam, and instructions on what you must do if there are conditions on your passing.

### **What should you do with the week between submitting your written work and the oral exam?**

Some people use the week before the exam to review their documents or look back at course notes. Others might get back to research or take the week to relax and recharge. This depends on your needs and on the expectations of your advisor.