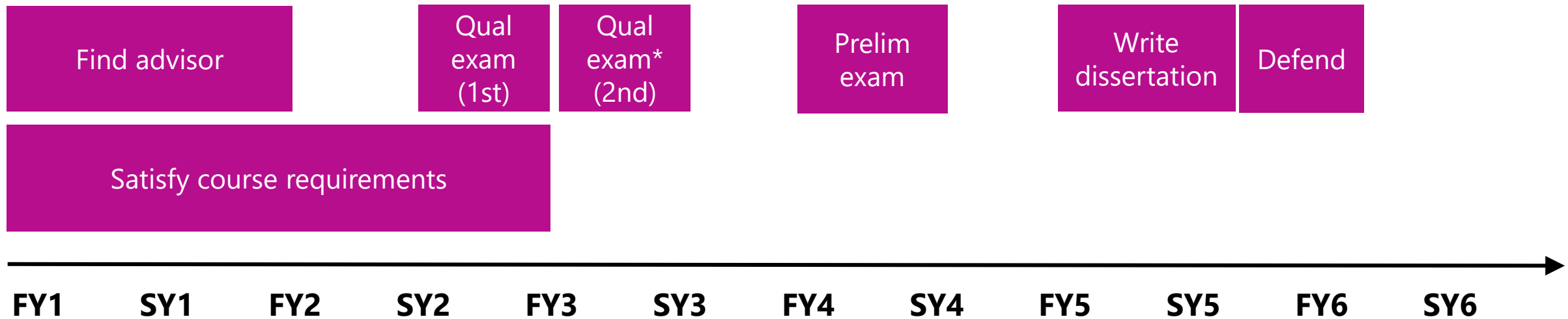


# **PhD Requirements, Milestones, and Strategies**

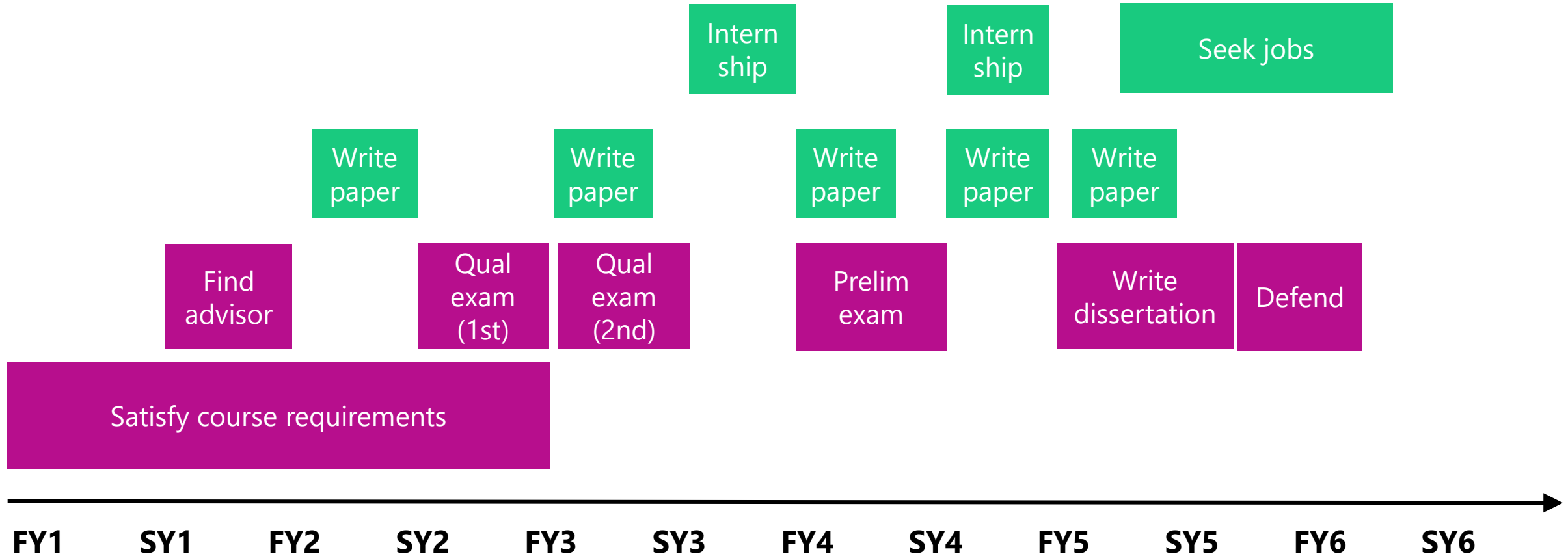
# Model Timeline

 Required



\* = if needed

# Model Timeline



# Discussion

- Milestones are not easily bounded in time
  - Example: writing a paper may require multiple revisions / submissions, preparing a talk, and travelling to present the work.
- Milestones are not always mutually exclusive
  - Example: each paper may become a chapter in the dissertation.
- Must also satisfy the TA requirement

# Time limits

- 7 years without M.S. degree
- 6 years with CS M.S. degree from outside UIUC
- 5 years with M.S. degree from UIUC
  
- Annual evaluations of progress

# Return on investment strategies

- Select topics aligned with peers in your research group
- Synergies between research and course projects
- Only accept research-oriented internships

# **Milestones and Strategies**

# Milestone 1: Find an Advisor

- Take courses, ask peers, attend group meetings and seminars
  - prepare and make positive first impression
- Required prior to taking the qualifying exam, but recommended by the end of the first year



# Milestone 2: Satisfy Course Requirements

- Required prior to graduation, but recommended by end of second or third year
- Program of study courses:
  - Some must be satisfied pre-qual
  - Some must be satisfied pre-prelim

# Ph.D. Coursework Requirements

Requirements	With approved CS M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit for the Degree	<b>64</b>	<b>72</b>	<b>96</b>
1. Thesis Research – CS 599 (minimum applied toward degree)	<b>32</b>	<b>32</b>	<b>32</b>
2. Course Work (min)	<b>16</b>	<b>24</b>	<b>48</b>
3. Additional thesis research credit or graduate-level course work (400- or 500-level)	<b>16</b>	<b>16</b>	<b>16</b>

# Proposed Ph.D. Coursework Requirements

**NEW**

Requirements	With approved CS M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit for the Degree	<b>64</b>	<b>72</b>	<b>96</b>
1. Thesis Research – CS 599 (minimum applied toward degree)	<b>32</b>	<b>32</b>	<b>32</b>
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
3. Additional thesis research credit or graduate-level course work (400- or 500-level)	<b>16</b>	<b>16</b>	<b>16</b>

Students coming in with non-CS graduate degrees will get graduate credit, but will have to take the same number of CS courses as a student coming in with a BS

# Proposed Ph.D. Coursework Requirements

Requirements	With approved CS M.S.	With approved graduate degree	With B.S. degree
Credit hours:	Hours	Hours	Hours
Total Credit for the Degree	64	72	96
1. Thesis Research – CS 599 (minimum applied toward degree)	32	32	32
2. Course Work (minimum)	16	24	48
3. Additional thesis re graduate-level course			16

Thesis hours are the same across all students

Note:

Students cannot take CS 599 until after they pass the qual. (exception in semester qual is taken)

Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
Credit hours:	Hours	Hours	Hours
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
CS 500-level course work • <b>not</b> CS 597 nor CS 591	12	12	12
Additional 500-level course work • <b>not</b> individual study or seminar	4	4	4
CS Graduate-level 400- or 500-level course work • <b>not</b> CS 597 nor CS 491/591	n/a	8	8
Additional graduate-level 400- or 500-level course work • Includes up to 16 hours of CS 597 • Includes up to 8 hours of CS 491/591 combined • <b>No non-CS</b> ind. study or seminar	n/a	n/a	24

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
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Additional 500-level course work • <b>not</b> individual study or seminar	4	4	4
CS Graduate-level 400- or 500-level course work • <b>not</b> CS 597 nor CS 491/591	n/a	0	0
Additional graduate-level 400- or 500-level course work • Includes up to 16 hours of CS 597 • Includes up to 8 hours of CS 491/591 combined • <b>No non-CS</b> ind. study or seminar	n/a	n/a	24



This has to be 500-level CS "True" classes

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
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Additional graduate-level 400- or 500-level course work • Includes up to 16 hours of CS 597 • Includes up to 8 hours of CS 491/591 combined • <b>No non-CS</b> ind. study or seminar	n/a	n/a	24



This can be “True” graduate classes from any department!

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
CS 500-level course work • <b>not</b> CS 597 nor CS 591	12	12	12
Additional 500-level course work • <b>not</b> individual study or seminar	4	4	4
CS Graduate-level 400- or 500-level course work • <b>not</b> CS 597 nor CS 491/591	n/a	8	8
Additional graduate-level 400- or 500-level course work • Includes up to 16 hours of CS 597 • Includes up to 8 hours of CS 491/591 combined • <b>No non-CS</b> ind. study or seminar	n/a	n/a	24
<div style="border: 2px solid red; padding: 5px; display: inline-block;"> <p>This has to be graduate-level CS “True” classes</p> </div>			



Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
CS 500-level course work • <b>not</b> CS 597 nor CS 591	12	12	12
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CS Graduate-level 400- or 500-level course work • <b>not</b> CS 597 nor CS 491/591	n/a	8	8
Additional graduate-level 400- or 500-level course work • Includes up to 16 hours of CS 597 • Includes up to 8 hours of CS 491/591 combined • <b>No non-CS</b> ind. study or seminar	n/a	n/a	24

These are the extra classes that students with non-CS graduate degrees have to take – same as students entering with a BS

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	Hours	Hours	Hours
Total Credit	Minimum CS "True" Class Credit		
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
CS 500-level course work • <b>not</b> CS 597 nor CS 591	12	12	12
Additional 500-level course work • <b>not</b> individual study or seminar	4	4	4
CS Graduate-level 400- or 500-level course work • <b>not</b> CS 597 nor CS 491/591	n/a	8	8
Additional graduate-level 400- or 500-level course work • Includes up to 16 hours of CS 597 • Includes up to 8 hours of CS 491/591 combined • <b>No non-CS</b> ind. study or seminar	n/a	n/a	24

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	Hours	Hours	Hours
Total Credit	Minimum ALL "True" Class Credit		
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
CS 500-level course work <ul style="list-style-type: none"> <li>• <b>not</b> CS 597 nor CS 591</li> </ul>	12	12	12
Additional 500-level course work <ul style="list-style-type: none"> <li>• <b>not</b> individual study or seminar</li> </ul>	4	4	4
CS Graduate-level 400- or 500-level course work <ul style="list-style-type: none"> <li>• <b>not</b> CS 597 nor CS 491/591</li> </ul>	n/a	8	8
Additional graduate-level 400- or 500-level course work <ul style="list-style-type: none"> <li>• Includes up to 16 hours of CS 597</li> <li>• Includes up to 8 hours of CS 491/591 combined</li> <li>• <b>No non-CS</b> ind. study or seminar</li> </ul>	n/a	n/a	24

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
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Additional graduate-level 400- or 500-level course work • Includes up to 16 hours of CS 597 • Includes up to 8 hours of CS 491/591 combined • <b>No non-CS</b> ind. study or seminar	n/a	n/a	24

This can all be 597 + 491/591 credits!

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
CS 500-level course work • <b>not</b> CS 597 nor CS 591	12	12	12
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Additional graduate-level 400- or 500-level course work • Includes up to 16 hours of CS 597 • Includes up to 8 hours of CS 491/591 combined • <b>No non-CS</b> ind. study or seminar	n/a	n/a	24

This can be “True” graduate classes from any department!

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
2. Course Work (minimum)	<b>16</b>	<b>24</b>	<b>48</b>
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Additional graduate-level 400- or 500-level course work • Includes up to 16 hours of CS 597 • Includes up to 8 hours of CS 491/591 combined • <b>No non-CS</b> ind. study or seminar	n/a	n/a	24

This is also where the students with a graduate degrees get their credit!

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
Credit hours:	Hours	Hours	Hours
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
<p>3. Additional thesis research credit or graduate-level course work (400- or 500-level)</p> <ul style="list-style-type: none"> <li>• Thesis research hours must be CS 599</li> <li>• Includes CS 597 and CS 491/591 <ul style="list-style-type: none"> <li>• Not to exceed 16 hours of CS 597 and 8 hours of CS 491/591 combined towards degree</li> <li>• Not to exceed 8 hours of CS 597 per semester</li> <li>• Individual study hours must be CS 597, seminar hours must be CS 491/591</li> <li>• Includes CS 591 PHD, taken in the first semester</li> <li>• Includes CS 591 TA taken prior to/concurrently with first TAs hip</li> </ul> </li> </ul>	<b>16</b>	<b>16</b>	<b>16</b>

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
Credit hours:	Hours	Hours	Hours
Total Credit	64	72	96
<p>3. Additional thesis research credit or graduate-level course work (400- or 500-level)</p> <ul style="list-style-type: none"> <li>• Thesis research hours must be CS 599</li> <li>• Includes CS 597 and CS 491/591 <ul style="list-style-type: none"> <li>• Not to exceed 16 hours of CS 597 and 8 hours of CS 491/591 combined towards degree</li> <li>• Not to exceed 8 hours of CS 597 per semester</li> <li>• Individual study hours must be CS 597, seminar hours must be CS 491/591</li> <li>• Includes CS 591 PHD, taken in the first semester</li> <li>• Includes CS 591 TA taken prior to/concurrently with first TAship</li> </ul> </li> </ul>	16	16	

This can all be additional 599 credits!

This can be additional 597/491/591 credits not used in section 2 above!

This can include “True” graduate classes from any department!



Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
3. Additional thesis research credit or graduate-level course work (400- or 500-level)	<b>16</b>	<b>16</b>	<b>16</b>
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**This makes sure that the advisor is either core or affiliate CS!**  
  
**All core or affiliate faculty have a CS 599 rubric**

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
<p>3. Additional thesis research credit or graduate-level course work (400- or 500-level)</p> <ul style="list-style-type: none"> <li>• Thesis research hours must be CS 599</li> <li>• Includes CS 597 and CS 491/591 <ul style="list-style-type: none"> <li>• Not to exceed 16 hours of CS 597 and <b>8 hours</b> of CS 491/591 combined towards degree</li> <li>• Not to exceed 8 hours of CS 597 per semester</li> <li>• Individual study hours must be CS 597, seminar hours must be CS 491/591</li> <li>• Includes CS 591 PHD, taken in the first semester</li> <li>• Includes CS 591 TA taken prior to/concurrently with first TAs hip</li> </ul> </li> </ul>	<b>16</b>	<b>16</b>	<b>16</b>

**Current**  
Max 16 hours of individual study

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
<p>3. Additional thesis research credit or graduate-level course work (400- or 500-level)</p> <ul style="list-style-type: none"> <li>• Thesis research hours must be CS 599</li> <li>• Includes CS 597 and CS 491/591 <ul style="list-style-type: none"> <li>• Not to exceed 16 hours of CS 597 and 8 hours of CS 491/591 combined towards degree</li> <li>• Not to exceed <b>8 hours</b> of CS 597 per semester</li> </ul> </li> <li>• Individual study hours must be CS 597, seminar hours must be CS 491/591</li> <li>• Includes CS 591 PHD, taken in the first semester</li> <li>• Includes CS 591 TA taken prior to/concurrently with first TAs hip</li> </ul>	<b>16</b>	<b>16</b>	<b>16</b>

Students can take 8 hours of 597 per semester

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
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### Oversight

- If  $\leq 4$  hours, no change
- If  $> 4$  hours, additional faculty justification
- Late add past 10th day, additional faculty justification

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
Credit hours:	Hours	Hours	Hours
Total Credit	64	72	96
3. Additional thesis research credit or graduate-level course work (400- or 500-level) <ul style="list-style-type: none"> <li>• Thesis research hours must be CS 599</li> <li>• Includes CS 597 and CS 491/591               <ul style="list-style-type: none"> <li>• Not to exceed 16 hours of CS 597 and 8 hours of CS 491/591 combined towards degree</li> <li>• Not to exceed 8 hours of CS 597 per semester</li> <li>• Individual study hours must be CS 597, seminar hours must be CS 491/591</li> <li>• Includes CS 591 PHD, taken in the first semester</li> <li>• Includes CS 591 TA taken prior to/concurrently with first TAship</li> </ul> </li> </ul>	16	16	16

8 hours includes CS 591 PhD and CS 591 TA

Proposed Requirements	With approved C.S. M.S.	With approved graduate degree	With B.S. degree
<b>Credit hours:</b>	<b>Hours</b>	<b>Hours</b>	<b>Hours</b>
Total Credit	<b>64</b>	<b>72</b>	<b>96</b>
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This makes sure the individual study is either core or affiliate CS faculty or the seminar is CS

All core or affiliate faculty have a CS 597 rubric

# Program of Study Form

- List the courses you plan to take with rationale, and get three faculty to agree on the curriculum plan
- Area choice for Program of Study due September 19th
- Final Program of Study form due December 1<sup>st</sup> to the department
  - We recommend you work on this early

# Course Strategies

- First two to three years, as needed afterward
- Don't take more than needed, use independent study (CS597)
- Take courses beneficial to your research
- Merge research and course projects



# Milestone 3: Pass Qualifying Exam

- An advisor agreement is required to take qual
- Test breadth and depth of knowledge in area
- Common format (but is area-specific)
  - Read 3 to 5 papers, in-person Q&A
- Two attempts, pass by end of third year

# Prepare for the qualifying exam

- Take courses in your area
- Seek advice from students who took it
- Take paper critiques in courses seriously
- Write your own paper

# Milestone 4: Pass Prelim Exam

- Consists of a document and presentation
  - document describes the plan and status
  - About 1/2 to 2/3 of the proposed work is already complete (write as if none of the work is done, then give status)
- Think of it as a contract
- Required no later than five semesters after passing qual

# Form Prelim Exam Committee

- Requirements are complex, but main rules are:
  - 4 voting members
  - 3 members must belong to the graduate faculty
  - 2 members are tenured (Associate or Full professors)
  - 3 from the extended CS faculty
  - 1 member from outside the University

# Example Committee

2 Associate / Full professors from CS

1 Assistant Professor from CS or is an affiliate

1 member from an industry research lab

# Milestone 6: Write Dissertation

- 100+ pages of content
- Plan 4+ months for writing, including revisions
- Schedule defense once a near final draft is complete

# Milestone 7: Pass Defense

- One hour presentation to the committee; open to the public
  - committee can remain the same as for the prelim
- Followed by 30 minutes of Q&A
- Followed by deliberation and a committee vote (P / F)

# Final Milestone: Employment!

- Prepare research and teaching statements
- Prepare polished job talk
- Discuss career options and preparations next time



# What you should be doing NOW

- Searching for advisor
- Independent study
- Exploring research groups
- Attending seminars in areas of interest
- Satisfying course requirements
- Reading research papers

# End of Y1 milestones (lower bound)

- Have an advisor
- Have a research direction of interest
- Be an apprentice on an existing research project
- Get name on paper as non-primary author

# In Conclusion

- The PhD program has many milestones to keep you on track
- Review and increase focus as they approach
- Some flexibility in individual cases, but don't assume
- Satisfy Y1 milestones