



## MS in Biological Data Science

### Thesis Proposal

*Applications should be completed at least two weeks before the beginning of the semester of instruction.*

Name(Last, First, Middle)	ID No.	Phone:	Date:
Local Address:		Email:	
City, State, Zip:		Anticipated Graduation:	
Title of Thesis Project:			
<ul style="list-style-type: none"> <li>• Graduate students are responsible for reviewing <a href="http://graduate.asu.edu/graddeadlines.html">http://graduate.asu.edu/graddeadlines.html</a> and completing all necessary procedures by the date specified. Failure to do so may postpone graduation.</li> <li>• An approved Plan of Study (iPOS) must be on file prior to registering for 599 in Biological Data Science, MS .</li> </ul>			

**Section A: Complete the following to be approved by your thesis committee chair and the BDS program director. Append pages to this document as needed. Page limits do NOT include references compiled at the end.**

- Problem Statement/Research Question/Need:**  
 The thesis option involves original independent research addressing key intellectual challenges. Focus areas include generating and curating biological data, analyzing biological data (e.g., ecological, environmental, genomics, or pharmacological datasets) with computational or statistical techniques, and visualizing data insights ethically. Students must clearly define the biological problem or research question, focusing on how data science techniques can be applied to solve it. This may include developing data tools or algorithms, performing exploratory data analysis, or creating predictive models to address biological or healthcare-related business challenges. (Limit: 1 page)
- Literature Review:**  
 Summarize existing research and solutions that have applied data science to similar biological problems. This section should highlight gaps in the current research and demonstrate the potential for applying innovative data science methods to address these issues. (Limit: 1 page)
- Project Methods:**  
 Provide a detailed plan for the thesis, outlining the specific biological problem, research objectives, and the methods and data science techniques to be employed in addressing the problem or research question. This should include data collection, data preprocessing, statistical modeling, machine learning algorithms, or AI techniques to analyze biological data. Additionally, specify any tools, platforms, or software that will be used in the thesis. Include a timeline for completion including a potential public oral defense date, presented in a Gantt chart format, that shows the thesis milestones and expected timeline for each stage. (Limit: 2 pages)
- Expected Outcomes/Impact:**  
 Define the anticipated outcomes of the thesis, focusing on how the application of data science will advance understanding or provide solutions to the biological problem. Discuss how the research findings could impact the field of biology, healthcare, or environmental science, and describe potential real-world applications. (Limit: 1 page)
- References:**  
 Provide a list of all sources cited in the proposal, formatted according to the required citation style. (No page limit)

**Section B:**

**Name of Thesis Chair** (must be a tenure track/tenured faculty member in MNS):

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**Name of BDS Program Director:**

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**Thesis Committee members:**

<b>Name</b>	<b>Degree</b>	<b>Affiliation*</b>	<b>Approved (by BDS director)</b>
Committee member 1			
Committee member 2			
Extra member			

\*non-ASU faculty or scientists will need to complete an approval form

**Approval Process:** Upload this form and the items described in Section A into your BDS Cohort Canvas Org. Both your thesis chair and the BDS program director will be notified to review the submission. In Canvas, they will each submit a pass or fail grade with comments as approval or denial of the proposal; you may be asked to make revisions. When approved, graduate advising will grant a course permission override and notify you by email to enroll in the appropriate 599 course.