



Competency	Product	Max Points	LSI Curricular Timeline & Responsibility for Assessment
1. Perform supervised introductory short-term research under the guidance of a research advisor	Satisfactorily complete a research project performed (5 points per week or per 40 hour unit)	40-50	<ul style="list-style-type: none"> <li>• Full time during vacation between Part 1 and Part 2 i.e. full time over the summer (8-10 weeks x 40 hrs/wk 320-400 hours);</li> <li>• Part-time during Pt. 1 (320-400 hours)</li> <li>• Full-time during Pt. 3 (320-400 hours)</li> </ul> This is a prerequisite and must be verified by your Research Advisor
2. Demonstrate “Inquiry” and critical thinking skills by proposing independent research stimulated by a patient encounter, clinical experiences or following an introductory research experience.	Identify an important research question and Develop concept for an independent research project with assistance of research mentor	10	Research Advisor
3. Demonstrate competency in “Inquiry” selection of an important biomedical research question and justify its significance based on critical review of the literature.	Perform a literature and information search and Write the Background & Significance section for a research proposal with relevant references and annotate the references with the salient supporting data identify the gaps in knowledge and rationale for the research	10	Research Advisor
5. Demonstrate competency in formulation of a hypothesis relevant to a biomedical research question	<ul style="list-style-type: none"> <li>• Write Specific Aims/Goals for a research study</li> <li>• Write Experimental Details, potential pitfalls, alternative approaches</li> </ul>	25	Research Advisor
6. Demonstrate competency in application, performance and analysis of a variety of research methods	Demonstrate conceptual and methodologic proficiency with at least 3 specific experimental methods (5 points per method)	15-25	Research Advisor
7. Demonstrate competency in critical analysis of experimental results, thorough interpretation of data, revision of hypothesis and/or experimental paradigm and identification of new questions	<ul style="list-style-type: none"> <li>• Prepare graphs and PowerPoint presentation of experimental data for at least 4 presentations (lab meeting, local or national conference etc.) (20 max)</li> <li>• Present and justify interpretation of experimental results in laboratory meeting or other comparable forum a minimum of 4 times (20 max)</li> </ul>	40	Research Advisor and Evaluation Forms
8. Demonstrate competency in statistical analysis of experimental data	Select and apply appropriate statistical analysis for experimental dataset	10	Research Advisor or Biostatistician

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<p>9. Demonstrate competency in verbal communication of research findings to a scientific audience by oral presentation of research results</p>	<ul style="list-style-type: none"> <li>• To lay public (5 max)</li> <li>• To a group of 6+ peers (5)</li> <li>• To scientific audience in a lab meeting, (5)</li> <li>• To a scientific audience at a local conference/research in progress or seminar (5)</li> <li>• To a scientific audience by abstract selection for presentation at a regional conference (10)</li> <li>• To a scientific audience by abstract selection at a national scientific meeting (20)</li> </ul> <p>Minimum of 4 occurrences (any combination)</p>	<p>40</p>	<p>Research Advisor and Evaluation form</p>
<p>10. Demonstrate competency in written communication of research findings to a scientific audience by submission and acceptance of a 1st authored publication of research findings in a peer reviewed journal</p>	<ul style="list-style-type: none"> <li>• Submit a 1st authored manuscript for publication (20)</li> <li>• Manuscript revision and response to reviewer comments (10) or</li> <li>• Acceptance of manuscript for publication (60)</li> </ul>	<p>60</p>	<p>Research Advisor and documents below</p> <ul style="list-style-type: none"> <li>• Manuscript Draft</li> <li>• Manuscript Revised Draft and Author Response</li> <li>• Published Manuscript</li> </ul>
<p>11. Demonstrate competency in critical analysis of the literature by discussing strengths and weaknesses of a selected scientific manuscript at a journal club or lab meeting</p>	<p>Critical analysis of selected scientific manuscripts at a minimum of 3 occurrences of journal club, lab meeting, seminar. (5 each)</p>	<p>15</p>	<p>Research Advisor and Evaluation Form</p>
<p>12. Demonstrate competency in responsible conduct of research by identifying and discussing the research compliance and ethical issues relevant to the research project.</p>	<p>Summarize in written form the research compliance and ethical issues and principles for a research project or selected published manuscript. (Minimum of 1 page, minimum of 2 topics) (5 points per topic)</p>	<p>10</p>	<p>Research Advisor</p>
<p>13. Demonstrate competency in competition for research funding by identify sources of funding for selected research project, preparing and submitting a research grant application to a national sponsor and analyzing review score, comments, outcome.</p>	<ul style="list-style-type: none"> <li>• Identify sources of funding for an independent research project (5)</li> <li>• Prepare a competitive research or scholarship application to support an independent research project (20) or</li> <li>• Successful award of a competitive research application to an extramural sponsor (40)</li> </ul>	<p>40</p>	<p>Research Advisor and documents below</p> <ul style="list-style-type: none"> <li>• List of research sponsors</li> <li>• Submitted grant proposal</li> <li>• Award Notification</li> </ul>
<p>14. Pursue a long-term independent research project stimulated by a patient encounter, clinical experiences or following an introductory research experience</p>	<ul style="list-style-type: none"> <li>• Satisfactorily completion a mentored 6 month research project (100)</li> <li>• Satisfactorily completion a mentored one year research project (200)</li> <li>• Satisfactorily completion a one year research project competitively awarded by HHMI, Sarnoff or other national sponsor (300)</li> </ul>	<p>300</p>	<p>Research Advisor</p> <ul style="list-style-type: none"> <li>• LSI Part 3, 6 months, fulltime</li> <li>• 1 year LOA</li> </ul>
	<p>Possible points</p>	<p>650</p>	