preliminary survey for choice labs

Please consult the descriptions below before indicating your top three Choice Lab preferences. These listings represent likely topics and timing, but Choice Lab offerings are subject to change. Your input at this stage will help us to refine this list. 1. Physics Choice Lab (Fall): This lab will emphasize experimental design and student exploration of the physical world through extended investigations of fundamental themes including oscillations, classical optics, and sustainability. Students will explore two themes over the semester, assembling the appropriate apparatus, making suitable measurements, and summarizing their findings. 2. Biosignal Processing Lab (Fall): Sensor kits and associated software will allow small teams of students to use signal processing theory to understand biological processes. 3. Field Ecology of Lizards Lab (Fall): Field techniques for studying population and physiological ecology of lizards, conducted at the Bernard Field Station. Spatial mapping of lizard abundance, habitats, thermal microclimates, and resource availability. 4. "Autonomous Flight" Lab (Spring): In this choice lab, students will design and program behaviors that guide quadrotor helicopters through a series of increasingly challenging tasks, culminating in an "aerial rescue" project. In doing so, students will explore and implement fundamental ideas from artificial intelligence, computer vision, and robot programming in the Python programming language. 5. Traffic Measurement and Management Lab (Spring) Transportation engineers try to design road networks to accommodate drivers safely and efficiently. A crucial first step is to understand traffic patterns in an area. This relies heavily on probabilistic models and statistical analysis. This choice lab will bring students to the streets of Claremont to measure and analyze traffic flows, queueing at intersections and the formation of traffic gaps and congestion waves. Mathematical tools such as queueing theory, fitting empirical distributions and simulation will be used to analyze the traffic data and make recommendations for transportation planning. 6. Environmental Analysis Lab (Spring): Lead is a major cause of poisoning in children and is present in the local soil largely as a result of human activity (paint, gasoline additives). Students will survey local soil environments to look for the presence of lead. Bioavailable lead, total available lead, and total lead content will be determined by the appropriate digestion of samples and analysis of the resulting materials using atomic absorption spectroscopy and X-ray fluorescence spectroscopy. Students groups will determine the locations of sampling with an eye towards understanding and mitigating the risk in the local community. 7. Field Work Methods and Practicum in Anthropology (Fall): This laboratory would provide an introduction to the method of participant observation in anthropology. Students will work to design their own projects utilizing this method, carry out studies, and present their results to the HMC community.

	1. Physics Choice Lab	2. Biosignal Processing	3. Field Ecology of Lizards	4. Autonomous Flight	5. Traffic Measurement and Management	6. Environmental Analysis	7. Anthropology Field Work Methods	Response Count
1. Most preferred	9.5% (11)	8.6% (10)	10.3% (12)	**57.8% (67)**	7.8% (9)	3.4% (4)	2.6% (3)	116
2. Second most preferred	8.7% (10)	19.1% (22)	18.3% (21)	11.3% (13)	**24.3% (28)**	14.8% (17)	3.5% (4)	115
3. Third most preferred	15.8% (18)	16.7% (19)	12.3% (14)	12.3% (14)	16.7% (19)	**19.3% (22)**	7.0% (8)	114
						answered question		**116**
						skipped question	**0**	