

University of Idaho Budget Justification

Senior Personnel -- \$36,095

The University of Idaho has determined the salary year for senior personnel to be based on the calendar year. A 3% increase in senior personnel salaries has been calculated in years 2 and 3 to account for anticipated inflation.

Dr. Esteban Hernandez Vargas, Principal Investigator, 2 calendar months per year

Dr. Hernandez Vargas will be in charge of the overall project direction. He will perform the high technical demands of developing the characterization of stabilizable regions in Goals 2.1 and designing optimal and suboptimal policies in Goal 2.2. He will also be dedicated to working with undergraduate students on Goals 1.1 and 1.2. He will supervise the Ph.D. student in Goals 1.1, 1.2, and 2.2. Dr. Hernandez Vargas has cross-disciplinary academic training in different engineering areas, mathematics, and biology, which has provided him with the expertise to tackle medical challenges in different infectious diseases (HIV, influenza, SARS-CoV-2, and Pneumococcus). Additionally, Dr. Hernandez Vargas will be developing the activities for the Broader Impacts, that is, guide students in their projects, train the Ph.D. student, organize the seminar series of successful Hispanic scientists in STEM, as well as prepare a proposal for NSF career in 2025. AY (9ms) salary base is \$80,012. AY (9ms) salary base is \$80,012. Requested amount is \$17,781 Yr1; \$18,314 Yr2 for a total of \$36,095.

Other Personnel -- \$76,704

TBD, Graduate Student, 12 calendar months per year

The Ph.D. graduate student will be supervised by Dr. Hernandez-Vargas and will learn and perform the mechanistic models in Goal 1.1 and with the respective techniques of parameter fitting proposed in Goal 1.2. It is expected that the Ph.D. student will help supervise undergraduate students. In the second year of the Ph.D., together with the PI, we will develop control policies for the proposed switched systems in Goal 2.2. Requested amount is \$26,352 Yr1; \$26,352 Yr2 for a total of \$52,704.

TBD, Undergraduate Students, 2 students per year

Dr. Hernandez Vargas will supervise the undergraduate students. Two students will learn and perform the mechanistic models with the respective techniques of parameter fitting proposed in Goals 1.1 and 1.2. In the last year of the Ph.D., together with the PI, the other two students will apply network analysis tools to evaluate bacteria's evolution in Goal 1.1. Ph.D. students will help to supervise the research project carried out by the undergraduate students. Each undergraduate student will work 400hrs per year at the hourly rate of \$15 an hour. Requested amount is \$12,000 Yr1; \$12,000 Yr2 for a total of \$24,000.

Fringe Benefits -- \$13,626

Fringe benefit rates have been applied according to University of Idaho guidelines as 30.1% for faculty and 3.6% for students. Total fringe benefits requested for this project is \$13,626.

Travel -- \$13,275

NSF Award Meeting Travel. Trip is estimated to cost \$1,675 to attend a 1.5 day and 2 nights meeting in Washington, D.C in year 1. \$700 airfare, \$150 ground transportation, \$514 lodging, \$237 per diem, \$74 for travel incidentals such as parking.

Conference Travel.

Out-of-state trips are estimated to cost \$1,600 each and include 4 days and 3 nights. \$700 airfare, \$150 ground transportation, \$450 lodging, \$236 per diem, \$64 for travel incidentals such as parking.

Foreign trips are estimated to cost \$2,600 each and include 4 days and 3 nights. \$1,700 airfare, \$150 ground transportation, \$450 lodging, \$236 per diem, \$64 for travel incidentals such as parking.

\$5,800 per year for one foreign trip for the PI and two out-of-state trips for the PI and one student. Conferences provide opportunities to disseminate research results and for the research team to network with other researchers. It is envisaged to attend relevant conferences in the control engineering field, such as the IEEE Conference on Decision and Control (the leading conference in control engineering) and the Annual Meeting of the Society for Mathematical Biology, which is the most important event organized by the Society of Mathematical Biology. Conference registration fees are listed separately in the Other section.

Other Direct Costs -- \$35,579**Publications -- \$6,741**

\$2,000 is requested for year 1 and \$4,741 for year 2 to help defray the cost of publishing the project's research.

Other -- \$28,838

\$3,000 Conference Fees. \$1,500 per year is requested for conference registration fees associated with sending the project researchers to scientific conferences and meetings. Travel costs are listed in the Travel section.

\$25,838 Graduate Student Tuition, Fees and Health Insurance. Funds are requested for the project graduate student researcher's tuition, fees and health insurance. A 5% anticipated annual inflation increase has been applied in year 2. \$12,604 Yr1; \$13,234 Yr2 for a total of \$25,838.

Indirect Costs -- \$74,721

Calculated at the University of Idaho Federally Negotiated Indirect Cost Rate as Modified Total Direct Cost. 50% rate applied. Total F&A for this project is requested in the amount of \$74,721.

Total Direct and Indirect Costs -- \$250,000