

2019 PROVOST'S LEARNING INNOVATIONS GRANTS CALL FOR PROPOSALS

The **Provost's Learning Innovations Grants** (PLIG) program was developed to broaden and enrich the learning experience of RIT students by funding faculty-initiated projects that enhance student learning. Managed by the Innovative Learning Institute (ILI), this program has been designed to:

- Better support dissemination of individual faculty learning to the wider faculty population
- Integrate funding with Institute priorities
- Support the scholarship of teaching and learning

I. ELIGIBILITY

All full-time RIT faculty (tenured, tenure-track, visiting, lecturers, etc.) are eligible to apply.

II. GRANT TYPES

There are two types of grants—Exploration and Focus—for PLIG 2019. Full details are available on the [Grants Types](#) page of the PLIG website (www.rit.edu/plig).

III. USE OF GRANT FUNDS

Provost's Learning Innovations Grants for 2019 may range from \$1,000-\$5,000.

Examples of the use of PLIG funds include:

- Course release (reasonable, actual replacement costs for faculty members removed from teaching)
- Development of new technology-based learning tools and/or environments
- Technologies or equipment required that are not normally provided by the department/college
- Resources for research design and consultation, data collection and aggregation, instrument development and/or purchase, secure data storage, data analysis, and report generation
- Travel to support research activity and/or meet with potential funding sources

IV. PLIG TIMELINE AND TASKS

The grant timeline assumes that most recipients will use the Spring 2019 and/or Summer 2019 term(s) to plan and develop their PLIG-funded project for delivery or implementation during the Fall 2019, Spring 2020, and/or Summer 2020 term(s). The full [timeline](#), including grantee tasks, is available on the PLIG website.

V. SELECTION COMMITTEE AND EVALUATION CRITERIA

Applications for PLIG funds are evaluated by the [PLIG selection committee](#) according to the following criteria:

- *Utility* (solves a defined problem; has potential to benefit many courses/faculty)
- *Creativity* (is a novel approach or application; represents a new paradigm)
- *Efficacy* (uses an evidence-based approach; impact to student learning and/or the student experience can be demonstrated)

The criteria are further defined, illustrated, and explained in the [Proposal Evaluation](#) section of the PLIG website.

VI. QUESTIONS

Please email plig@rit.edu with any questions about the PLIG process.

(Examples of previously funded projects are available in the [Previous Awards](#) section of the PLIG website).

2019 PROVOST'S LEARNING INNOVATIONS GRANTS

APPLICATION

INSTRUCTIONS

1. Complete this Application Form and save as "Lastname_Firstname_APP" (*using your name*).
2. Ask your Department Head to complete the Department Head Certification, scan and save as, "Lastname_Firstname_SIG" (*using your name*).
3. Email all documents to plig@rit.edu, **no later than 11:59pm ET, January 21, 2019**.

If you have any questions about completing this application, please contact Michael Starenko at 585-475-5035 or mssetc@rit.edu.

APPLICANT INFORMATION

This application is for a (please select *one* type of grant):

Exploration Grant

Focus Grant – Active Learning Across All Course Modes

Principal Applicant Name: Elizabeth Kmiecinski MS RD

Faculty Title: Associate Professor **Email:** eakism@rit.edu **Phone:** 585-475-2357
(*Full-time only*)

College: CHST **Department:** WSHN

Department Head Name: Barbara Lohse PhD, RD **Email:** balihst@rit.edu

Others involved in the project (if any): Angelina Maia, PhD RD

Project Name: Creation of Simulated Scenario to Train Nutrition Students in Nutrition Focused Physical Assessment through the use of SimMan3G

Total Funds Requested (*as calculated on the budget worksheet on the next page*): \$3600.00
(*requests of \$1,000 to \$5,000 will be considered*)

BUDGET

Complete the table below to calculate your budget

- The total shown on this worksheet must match the “Total funds requested” in the Applicant Information section on page 1 of this application form.
- If awarded, additional funds will be provided to cover any benefits and ITS expenses associated with the salary budget requested.
- Note that any equipment or other materials purchased with grant funds are the property of your department and revert to the department after your project is completed

Personnel	Purpose/Justification	Amount
Full-time Faculty/Staff		
Adjuncts, Part-time Faculty/Staff, Summer Salary		
Consultant	Expertise in NFPA	\$2,500
Student Workers, Graduate Assistants		
Student	To program simulation scenario	\$600
Personnel Total		\$ 310 0.00
Equipment	Purpose/Justification	Amount
Equipment Total		\$ 0.00
Travel	Purpose/Justification	Amount
Travel Total		\$ 0.00
Other (Specify)	Purpose/Justification	Amount
SimMan3Gsupplies	Additional parts needed for mannequin	\$500
Other Total		\$ 50 0.00
Total Award Requested		\$3600

STATEMENT OF UTILITY (two pages maximum)

Using the evaluation criteria outlined in the [Proposal Evaluation](#) section of the PLIG website, please provide an overview of the project you are proposing, including:

- Project objectives
- An explanation of the teaching/learning problem(s) it is designed to address
- An explanation of the significance of the project to student outcomes and/or the student experience.
- A brief description of how the project integrates with activity already underway at RIT in a priority area and/or how this approach has been successfully used at RIT already.

Project Objectives: Early utilization of simulation as a learning technique dates historically to applications in aviation and military exercises. Simulation technologies were soon thereafter adopted for medical education as a means of creating immersive experiences that replicated patient interactions and application of clinical procedures to train medical professionals without associated risks to “real” patients. Such experiences, now commonplace in a wide range of health care training programs (physician, nursing, physician assistant, medical imaging, dietetics, etc.) serve to deepen students’ skill sets to prepare them for a responsible, successful medical practice. At the present time, there are >275 “medical simulation” facilities associated with hospitals, clinics, and universities around the United States. The overall goal of this proposal is to generate curricula focused on utilization of our new CHST Medical Simulation Laboratory (MSL) and the newly purchased SimMan3G to support education and training of students in the Dietetics & Nutrition and Nutritional Sciences programs. Clearly, placing students in simulated medical scenarios during different phases of their training will promote transformative change in technical skill competency/learning outcomes and will contribute to RIT’s national and international reputation as a leader in medical nutrition education programming that embrace changes in technology. The new MSL will provide advanced training and realism for our future practitioners and healthcare workers through problem-based instruction and new innovative approaches to ensure patient safety and student understanding of how best to adapt to unanticipated and uncommon clinical scenarios. These scenario exercises will be introduced initially during *Medical Nutrition Therapy I*, which is a fourth year course for each curriculum, as a “scaffold” approach to reflective learning from simple to much more complicated cases of human disease.

Initial focus group discussions with Nutrition program faculty have been conducted to learn about opportunities and needs for simulation and specific curricular enhancements/revisions necessary to achieve advanced student learning outcome goals. Additionally, after the purchase of a Laerdal SimMan3G system in the fall 2016, a two-day workshop organized and operated by the company technical staff introduced the wide range of mannequin, medical scenario, and computer software capabilities. Our goal is to integrate scenario exercises into *the Medical Nutrition Therapy* courses (NUTR 525/625 and NUTR 526/626) starting with NUTR 525. Achieving this goal will also contribute to the Wegmans School of Health and Nutrition’s plan to offer an accredited dietetic internship, which will have significant demands for simulation activities. We anticipate that accomplishment of this exercise will be mandatory for successful completion of the competencies related to nutrition clinical skills and professional behavioral technical standards.

An additional important objective for this project is increased collaboration with Rochester Regional Health (RRH), an objective of RIT’s Strategic Plan 2018-20125, *Greatness through Difference*. This proposal offers the opportunity to engage the services of an RRH nutrition clinical staff person who has unique training and expertise in the content of the initial simulation module. Additionally, this will help realize the collaborations requested by RRH professionals on other initiatives involving the Medical Simulation Laboratory.

Incorporation of simulation scenarios into the curriculum, initially that of Nutrition Focused Physical Assessment, would provide the following:

- a more effective means to assess student clinical skill competencies, specifically Nutrition Focused Physical Assessment . Currently this competency is assessed by students answering didactic questions

about the process following a viewing of a video demonstrating the techniques. Clearly hands-on experiential learning is preferred;

- better prepared students to effectively demonstrate the performance outcome related to Nutrition Focused Physical Assessment in their required post baccalaureate dietetic internship;
- maximizing the resource investment that CHST has made in the Medical Simulation Laboratory
- training of alumni and other area Registered Dietitians (RD) in this evolving skill set.
- facilitating new opportunities for interacting with RRH nutrition personnel.

The pilot plan is to engage all students enrolled in NUTR 525, Medical Nutrition Therapy I in fall semester 2019 in a demonstration session focused on learning the skills required to conduct a Nutrition Focused Physical Assessment followed by an individual session where students would demonstrate their competency in conducting the assessment. Students will continue to practice on each other throughout the semester to refine their skills but these simulated patient interactions will provide another means of assessment that, with the proper effective debriefing period that will immediately follow, will give student and faculty alike the opportunity to enhance training and clinical competency. More advanced simulation exercises will be incorporated into the Medical Nutrition Therapy II curriculum that follows in the spring semester. I am the instructor for both courses and will be assisted in this project by Dr. Angelina Maia, Nutrition Program Director.

Significance of student experience: One of the most significant responsibilities we hold as faculty for the nutrition programs is to ensure our students have met all the Required Core Knowledge statements set forth by the Accrediting Council for Education of Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND) which accredits our Dietetics & Nutrition program. To meet those goals, we have designed a comprehensive curriculum that prepares students to be accepted into the highly competitive post baccalaureate dietetic internship program where students train as practitioners in healthcare facilities under the guidance of internship faculty and clinical site RD partners. Utilization of a high-tech simulation system, the SimMan3G, will clearly enhance our capacity to effectively train students for future practice. Practicing, and potentially failing, through a virtual clinical scenario is much more instructive and is far less upsetting (and libelous!) than failing and potentially hurting a real patient!

Integration of project: Current activities in simulation at RIT are conducted by the Physician Assistant program and, on a smaller scale, in the Diagnostic Medical Sonography program. This project would expand the use of the simulation laboratory to students enrolled in programs of the Wegmans School of Health & Nutrition (WSHN), specifically the Nutrition programs. Consistent with the opportunities currently afforded to students enrolled in the Physician Assistant and Diagnostic Medical Sonography programs, student enrolled in our Nutrition programs will benefit from the simulation laboratory to augment and complement the traditional skills-training exercises, and thereby greatly enhance student learning and career preparation. The new simulation laboratory space consists of a large, multipurpose lab (1555 lab – 806.6 sf) and a smaller telemedicine/research and development lab room (1565 lab – 274.8 sf) separated by an observation/control room center (1563 lab – 180.6 sf) in between.

STATEMENT OF CREATIVITY (three paragraphs maximum)

Provide a brief description of how this is a novel approach, or a new application of an existing mode or model of teaching and learning, and/or research about how teaching and learning represents a new paradigm.

Use of simulated scenarios and/or simulated patients has become commonplace in health professions curricula around the country as a means of training and assessment of performance in compliance with established standards for a range of health disciplines and professions including nutrition and dietetics. With the creation of the Medical Simulation Laboratory in our new Clinical Health Sciences Center at RIT, we now have the infrastructure to build simulation exercises into our training curriculum in a focused, thoughtful manner. Our described project has similar features to the recently funded PLIG project in the Physician Assistant program in that simulation experiences will be initiated in a controlled manner, i.e., in one course with a specific activity that has clear student outcomes. Then, following assessment of how the simulation activity augmented student learning, more complicated simulation exercises can be implemented in this and other courses.

A Nutrition Focused Physical Assessment is a focused, systematic head-to-toe assessment of a patient's physical appearance and function to help determine nutritional status by uncovering any signs of malnutrition, nutrient deficiencies, or nutrient toxicities. This process is the most recent addition to nutrition assessment procedures and thus constitutes a new skill set for the Registered Dietitian Nutritionists (RDN). The literature reports that those who have been trained in Nutrition Focused Physical Assessment report not only increased knowledge to assist with diagnosing malnutrition, but also a greater sense of confidence. Health care providers, including Rochester Regional Health (RRH), have also reported an increase in malnutrition diagnosis and reimbursement as a result of Registered Dietitian Nutritionists who practice Nutrition Focused Physical Assessment as a component of nutritional assessment.

Experts and related extant literature reveal little doubt that the combination of the simulated virtual scenario experience and follow-up debriefing exercises have already enhanced overall preparation of students for patient interaction and care. Such simulated patient exposure has been limited in the past because of lack of infrastructure, equipment, and designed curricula integrated with the more traditional approaches to medical education. Such a shift in the pedagogical design requires additional training of faculty and preparation of a great deal of "up front" medical scenarios to ensure compliance with established learning outcomes and competencies for each of the selected classes. The capabilities of the SimMan3G are nearly limitless in the portfolio of normal and disease states it can portray through cardiovascular, respiratory, nervous system, digestive, urinary, and reproductive systems to name just a few. Students can perform a comprehensive "head to toe" physical examinations on a fully alert, eye-blinking, breathing mannequin and record heartrate by palpating pulses at four different sites, listen to heart valve sounds, listen to breath and bowel sounds, etc., all while interacting with patient and laboratory/EKG/EEG monitor information at the same time, all of which that is being driven within the control room, videotaped, and monitored/assessed by faculty on-site. It makes perfect sense that, in a technical University the quality of RIT that we include this kind of state-of-the-art technical tool to contribute to student training and learning. The promise of simulation-based health professions training offers useful opportunities to reduce risks to patients and learners, improve learners' competence and confidence, increase patient safety, and reduce costs of medical care. RIT is well positioned to move strategically toward such a facility, which is very consistent with its brand and reputation as a leader in applied technology and research. As such, this project could also serve to highlight technology integration and market the Wegmans School of Health & Nutrition programs to perspective students. The project is also consistent with the educational vision and mission for the College of Health Sciences and Technology.

STATEMENT OF EFFICACY (two pages maximum)

Provide a brief description of the experiment/research design, methodology, and methods of data collection and analysis you will use to gauge efficacy.

This project will utilize the expertise of Dr. Dick Doolittle, Vice Dean for CHST, who has attended numerous conferences and training in the use of simulation technology in health professions education as well as the recent utilization of the simulation facility by the Physician Assistant program. As mentioned previously, virtual simulation exercises will be integrated into the course, NUTR 525 Medical Nutrition Therapy I, within the fourth 4th year of the nutrition programs curricula. A critical competency for the accredited program specifically names application of Nutrition Focused Physical Assessment. Incorporating simulation technology to enable Nutrition Focused Physical Assessment techniques will enable students to meet learning outcomes for the course and the accredited program. Within the course, students will be expected to successfully complete simulation training and meet specific technical/skills during a final exam session. In addition to the technical skill training associated with physical exam, diagnosis, and treatment planning, simulation has also been shown to be a reliable tool for assessing learners and for teaching topics such as teamwork and communication. Debriefing after a scenario or activity is an important component of full-scale simulation and critical to immediate feedback and assessment. Video recording of a particular scenario (or team interaction) can also be used to initiate discussion and to make sure that all learning objectives were covered. Debriefing can focus both around the cognitive process involved in the recognition of the problem and the implementation of the management guidelines and the technical level at which the ability of the learner to apply rules and appropriate responses in a stressful situation is evaluated. In all cases, students will be scored on how well they achieved established competencies. We will utilize the competency language from our accrediting organization to develop a scoring algorithm. The score will be processed as is currently done for other programs, namely recorded in the control room, then passed to the instructor so the debriefing experience is individualized.

The proposed budget is to sponsor a student (Biomedical Engineering, Health IT, Bioinformatics, etc.) equipped with the skills to help refine the simulation scenario to be offered the next academic year through the Medical Nutrition Therapy I course in the fall semester. The student would work with Dr. Doolittle to learn the software systems and capabilities of SimMan3G and program and then with course faculty and the consultant (see below) to arrange for the Nutrition Focused Physical Assessment scenario. This scenario, once created and refined, would be conducted for all students as a group in the form of a demonstration near the end of fall semester, followed by a skill set evaluation for each student independently during the final exam session. The proposed budget will also support the use of a consultant who has current experience and expertise in conducting Nutrition Focused Physical Assessment which could then be adopted by our current faculty. The intended consultant is a RIT Nutrition program alumnus, Carly Densmore, who was trained in the technique by the Cleveland Clinic and is employed as a clinical practitioner by RRH.

The simulation laboratory in general and specifically this proposal will help to promote transformative change within the nutrition programs and the Wegmans School of Health & Nutrition and will contribute to RIT's national and international reputation as a leader in educational programming and applied research that embrace changes in technology. The simulation laboratory activities will provide advanced training and realism for our future practitioners and healthcare workers through problem-based instruction and new innovative approaches to ensure patient safety and student understanding of how best to adapt to unanticipated and uncommon clinical scenarios. Specifically, this proposal will allow for development of a simulation experience for nutrition majors so that they will be competitive in the medical workplace. The simulation laboratory experiences can also integrate with the planned Health and Well-Being graduate program and offer projects and theses related to the use of simulation in healthcare training.

ADDITIONAL CONSIDERATIONS

Please address these questions, if needed.

Will your project require assistance for extensive or unusual media, multimedia, simulation, and/or software development? If so, please explain?

No other assistance other than that already identified in the proposal

All courses offered by RIT must be accessible to students with disabilities, according to Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans with Disabilities Act of 1990 (rit.edu/studentaffairs/disabilityservices/info). Is your proposed teaching approach accessible to all students, with reasonable accommodation? If not, please explain.

Yes

RIT abides by the Family Educational Rights and Privacy Act of 1974 (FERPA), which prohibits instructors from making students' identities, course work, and educational records public without their consent (rit.edu/xVzNE). Will any data gathering or sharing for your project raise any FERPA issues? If so, please explain.

No, any student record will be kept strictly confidential through the study

DISSEMINATION AGREEMENT

By completing this grant application, I agree to provide the materials and services described here, in support of disseminating what is learned from this project to the RIT community.

I also agree to return all/a portion of the funds that I receive for this project to RIT if I fail to complete or provide the materials described here:

- Full Project Plan (*including roles and responsibilities, milestone dates, and pertinent project details*)
- Preliminary Findings report (*may include experiment/study design, lessons learned, initial data collection, and/or literature review summary*)
- Participation in an ILI/TLS Preliminary Findings Roundtable dissemination event (*share and discuss your preliminary findings with your PLIG cohort*)
- Final Summary of Findings (*including data collection, lessons learned, implications for further study, and which may be in the form of an article abstract, conference presentation outline, or short report*)
- Final budget accounting (*reconciliation of budget provided with your application and the actual project expenses*)
- Participation in an ILI/TLS PLIG Showcase dissemination event (*present a poster or other display at the annual Showcase*)

By submitting this application, I accept this agreement. _____ (*applicant, please initial here*)

TIMELINE AND TASKS

Please indicate any variances to the planned PLIG 2019 schedule as described in the above Dissemination Agreement and the reasons for this variance. *If you do not intend to deviate from the schedule, you may leave this section blank.*

Task	Date	Proposed Variance and Reason
Full Project Plan submitted to TLS	August 16, 2019	
Preliminary Findings report submitted to TLS	January 10, 2020	
Participation in an ILI/TLS Preliminary Findings Roundtable dissemination event	February, 2020	
Summary of Final Findings report submitted to TLS	August 21, 2020	
Final Budget Accounting report submitted to TLS	August 21, 2020	
Participation in an ILI/TLS PLIG Showcase dissemination event	November 2020	

DISSEMINATION PLAN (*optional*)

Provide details about the journals, conferences, shows, or other external vehicles with strong potential for dissemination of your results (in addition to the ILI/TLS Preliminary Findings Roundtable and PLIG Showcase dissemination events). Include supporting documentation, such as preliminary interest or acceptance, with your application, if available. *(Please note that special consideration will be given to proposals that have a defined opportunity for external dissemination, such as an academic journal or professional conference.)*

Results and a sharing of best practices may be presented at several venues including, but not limited to the annual Academy of Nutrition and Dietetics (AND) Food and Nutrition conference & Expo to be held Indianapolis, IN, Oct 17-20, 2020. Opportunities to disseminate findings through one of a number of journals to include but not limited to:

- Journal of the Academy of Nutrition & Dietetics
- Journal of Interprofessional Care
- Topics in Clinical Nutrition

DEPARTMENT HEAD CERTIFICATION

I support this PLIG application and verify that the principal applicant is a full-time faculty member in good standing in my department.

Principal Applicant Name: Elizabeth Kmiecinski , MS RD

Department Head Name (PRINT): Barbara Lohse PhD, RD **Email:** balihst@rit.edu

Department Head Signature: _____ **Date:** _____

NOTE: When signed, please scan and email with your Application Form to: plig@rit.edu