SUPERVISOR & PROJECT INFORMATION FORM

Please complete and return via email only (gdip.hres@utoronto.ca) by September 4, 2018 (forms received after this date will not be posted).

Supervisor Information

Name: Geoffrey Liu          Email: geoffrey.liu@uhn.on.ca
Degree(s): M.D.              SGS Departments: Medical Biophysics, IMS, Epidemiology
Academic Rank: Professor    Field of Research: Cancer Related Research: Translational, Clinical,
Research Institution Affiliation (if applicable): Princess Margaret Cancer Centre
Health Services, Epidemiology

Allocation of student contact time: One-on-one with Supervisor to review progress: 1 hour per week; Education coordinator: 1/2 hour per week; Statistical team: 1/2 hour per week.
**Project Information** (for posting on GDipHR website)

**Title:** COMBIEL (Cancer Outcomes, Medicine, Biostatistics, Informatics, Epidemiology Laboratory) Research Projects

**Description (max 500 words):**

The laboratory of Geoffrey Liu is a transdisciplinary cancer laboratory that includes translational (primary derived xenografts, genomics, biomarkers), clinical (descriptive/analytical), health services (health-utilities and patient-reported-outcomes), and epidemiological (risk/prognostic factor analyses) research that heavily utilizes quantitative analyses. Every past CREMS-Scholar (the predecessor to GDipHR) has presented internationally at conferences and published/preparing-to-publish a median of three manuscripts (range:2-4); examples include PMID:22733538, PMID:24088136, PMID:24419133, PMID:25877384, PMID:27567613, PMID:27783475, and PMID:28050143. CREMS-Scholars have won multiple awards for their research, including the Novartis-Oncology-Young-Clinical-Investigator-Awards (NOYCIA) and multiple American Society of Clinical Oncology Merit Awards. Each CREMS-Scholar has co-developed a tailored project according to the interests, strengths, and needs of the Scholar, combined with the expertise and strengths and needs of the supervisor, such that it is impossible to describe any one single project type. Past examples include: analyses of cancer genomic biomarkers, quantitative analyses (requiring familiarity with SAS or R) of a massive 4500-person complex dataset of individuals at risk of cancer, epidemiological prognostication of a health behaviour related to cancer in survivorship analyses, measurement of raw data related to the development of quality-adjusted life year analyses, and quantitative survey development and analysis of cancer patient knowledge and preferences. Some Scholars have developed their own project based on their interests, while others started with the supervisor's interests - both are clearly feasible. The student will be working alongside a multidisciplinary research training team with a long track record of training the next generation of clinician-scientists and clinician-investigators in the COMBIEL research training program: please see www.UHNCOMBIEL.com for details (focus particularly on publications, awards, activities). Each GDipHR student will have weekly contact with the supervisor to develop and hone a set of research questions, translating them into a set of specific aims with testable hypotheses. An epidemiological education coordinator, Ms. Cathi Brown MSc, will help the supervisor train the student to operationalize the aims into the proper study design and creating a study protocol. A data analyst (Katrina Hueniken, MPH) and senior biostatistician (Wei Xu, PhD, Associate Professor of Biostatistics, Dalla Lana School of Public Health) will help the student and supervisor develop appropriate statistical analysis plans. The student may supervise a small team of undergraduate or other medical undergraduate summer students in data collection, dependent on the project's needs. During each summer, a series of COMBIEL seminars/lectures/presentations will help the GDipHR student consolidate the skills learned in their formal courses. To meet research goals within the timeframe of GDipHR, we are looking for dedicated individuals whose strengths lie in quantitative analyses, or those with strong interest in learning such analyses, and who have a strong interest in a cancer-related specialty. Though the research involves many different solid cancer types (ovarian, colorectal, hepatobiliary, gastro-esophageal are examples), the major cancer sites of the laboratory are lung and head and neck cancers. Despite the intensity and drive of our team, the team has lots of fun doing research (see photos, www.uhncombiel.com). References from prior CREMS-Scholars are...
available upon request.

If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?

☑️ YES ☐ NO ☐ Application Submitted ☐ N/A

Do you expect this work will be published within the 20 months?

☑️ YES ☐ NO ☐ Uncertain
Student’s roles and responsibilities (please be as specific as possible):

Because of the intense nature of the GDipHR program, the student will report directly to Dr. Liu, supported by Cathi Brown, a MSc. level epidemiologist, and Wei Xu, a genetic and trials PhD biostatistician. The scholar may also obtain study design and implementation help from other members of the laboratory.

Scholar’s Roles and Responsibilities will be similar to former and current successful CREMS Research Scholar roles/responsibilities:
Lawson Eng (2011-2012); Hiten Naik (2014-2015); Min Joon Lee (2017-2018); Andrew Lam (2018-{2019})

(1) January, 2019: The GDipHR student will obtain appropriate ID and research training as required by University Health Network (UHN) to access Electronic Patient Records, Patient Scheduling System (PHS), clinical research training certificate (required of all research personnel), and complete all administrative forms to become student UHN employee, with VPN laptop access. Cathi Brown and Zhuo Chen will guide this process.

(2) January-April, 2019: The GDipHR student will become familiar with the existing dataset and study components, immersing himself or herself with understanding the many components of this research program, in order to be able to eventually develop a research question through to analysis and publication.

(3) January-April, 2019. The GDipHR student will review quantitative skills (statistics) with help of the Liu statistical team (K. Hueniken, Dr. W. Xu).

(4) January-April, 2019. The GDipHR student will perform the requisite literature search to become familiar with the research topic. This may be branched off into a systematic review manuscript, if the student has time, but will form the basis of development of the research question. Direct supervision by Dr. Liu and Cathi Brown.

(5) May-August, 2019. The GDipHR student will focus on data merging, cleaning, and initial analysis, while finalizing the statistical analysis plan. Note that because this is a longstanding research program, REB amendments are not necessary; however, the scholar will sign the appropriate UHN delegation log to become a member of the study team. (Liu/Brown)

(6) May-August, 2019. The GDipHR student will be an integral member of the summer COMBIEL training program, and is expected to lead at least one or two undergraduate or medical undergraduate students who will help verify data and clean data. The scholar is expected to work with our COMBIEL statistics team (led by Dr. Xu) to finalize the SAP (Statistical Analysis Plan). (Liu/Brown/Xu)
(7) July-August, 2019. GDipHR student will expose him or herself to all laboratory aspects of biomarker development pipeline performed in the Liu laboratory, including discovery, validation, clinical utility, and ELSI (ethical, legal, societal implication) research (Liu/Chen).

(8) September 2019- May, 2020. The CREMS student will follow the SAP and run appropriate analyses, under the direct supervision of Drs Liu and Xu, and Cathi Brown. More complex modeling will be performed in conjunction with a Waterloo Biostatistical Intern funded by the Ontario Institute for Cancer Research, with Dr. Xu as supervisor; a different intern has been chosen to work in this capacity for the past 8 years (9 month placement).

(9) June, 2020-August, 2020. GDipHR student will draft the manuscript for publication and submit the data for presentation at a national or international meeting.

(10) 2020-2021: Present at the U of T Undergraduate Medical Student Research Day.

Please indicate who will serve as the student’s direct report for daily oversight (PI, PhD student, technician, etc...): Supervisor will provide direct oversight. This is the only way to ensure productivity and proper supervision given the tight timelines of the GDipHR program.