

'396' Undergraduate Research Project Application Form

Version: 200603

Office for Undergraduate Research in Science
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Email: victor.chisholm@mcgill.ca Web: www.mcgill.ca/science/ours/

INSTRUCTIONS FOR SUPERVISORS

- **All fields are required, unless indicated otherwise.**
- Form available in Word and LaTeX formats.
- Complete Sections A & B electronically.
- Email to victor.chisholm@mcgill.ca who will post as PDF on www.mcgill.ca/science/ours/396/.

INSTRUCTIONS FOR STUDENTS

- **All fields are required, unless indicated otherwise.**
- Download and print this form. Complete Section C and sign.
- See "How students can apply" instructions in Section B.
- Your supervisor or department will tell you if you are selected for this project. If so, you will receive a code to register for a '396' course on MINERVA.

SECTION A: SUPERVISOR INFORMATION

Name: Robert Rutledge **Email:** rutledge@physics.mcgill.ca
Phone: 514-398-6509 **Website:** http://www.physics.mcgill.ca/~rutledge/
Supervisor's Department or Unit: Physics Department **Course Number:** PHYS396

SECTION B: PROJECT INFORMATION

Term: Fall 2006 **Project start & end dates:** _____

Project title: Search for Neutron Stars in Globular Clusters

Project description: This project will consist of spectrally identifying neutron stars in globular clusters, using observational data. The work will be to search for X-ray point sources in pointed observations taken with the European Space Agency (ESA) satellite, the Newton X-ray Multi-Mirror Mission (XMM). The observations are of specific regions of the sky corresponding to the positions of globular clusters, which are nearby, and with low absorption. The analysis is in two stages: (1) to produce a catalogue of discovered X-ray sources in these globular clusters; and (2) to fit the spectra of each X-ray sources to see if the spectrum is consistent with that expected from a hydrogen-atmosphere neutron star - specifically, to see if the radius and the temperature of the star are similar to those of known neutron stars.

Prerequisites: 1 term completed at McGill + CGPA ≥ 3.0; or permission of instructor.

Grading scheme: The evaluation scheme will consist in an article (70%), and a 30-minute oral presentation (30%)

Other: _____

Status: Mark with an x. This project is...
[] Open to applicants
[] Already taken; no more positions available this term
[] Taken, but contact me for other possible projects this term

Ethics, safety, and training: Which of the following, if any, is involved? Mark with an x.
[] Animal subjects
[] Human subjects
[] Biohazardous substances
[] Radioactive materials
[] Handling chemicals
[] Using lasers

For undergraduate students, ethics and safety compliance is the supervisor's responsibility.

How students can apply: Bring this application form and your advising transcript to me during office hours.

EMAIL TO [VICTOR.CHISHOLM@MCGILL.CA](mailto:victor.chisholm@mcgill.ca) WHO WILL POST AT [WWW.MCGILL.CA/SCIENCE/OURS/396/](http://www.mcgill.ca/science/ours/396/).

SECTION C: STUDENT INFORMATION. (1) PRINT LEGIBLY AND SIGN. (2) SEE "HOW STUDENTS CAN APPLY" IN SECTION B.

Name: _____ **McGill ID:** _____
Email: _____@mail.mcgill.ca **Phone:** _____
Program: _____ (e.g., B.Sc. Maj. Chem. Minor Biology) **Level:** _____
(circle one) U0 / U1 / U2 / U3
I have not applied for another 396 course in this term.
Student signature: _____ **Date:** _____

SECTION D: APPROVALS. (1) PRINT NAMES & SIGN. (2) NOTIFY OFFICE FOR UNDERGRADUATE RESEARCH IN SCIENCE. (3) GIVE STUDENT CODE TO REGISTER FOR COURSE ON MINERVA.

Supervisor: _____ **Date:** _____
Unit Chair, Director, or designate - I certify that this project conforms to departmental requirements for 396 courses. _____ **Date:** _____