

Application for Summer Research North Central College, Summer 2008

Applications Due **Friday, February 29 (end of Week 9)** to Dr. Peterson (SC105)

Name: _____ Major: _____

Fr So Jr Sr Possible Career Interests: _____

Contact information: phone: _____ e-mail: _____

- Please attach a cover letter to this form. Your cover letter should *briefly* introduce yourself, explain why you would like to do research in the summer and why you would be an asset to a faculty member's laboratory group. It should not be more than 1 page long.
- Please attach a current resumé to this form.
- Please place a check mark by each class you will have taken by the end of Spring 2008 term.

___ CHM 141	___ CHM 221	___ CHM 210	___ BIO 147	___ BIO 202	___ PSY 250
___ CHM 142	___ CHM 222	___ BIO 101	___ BIO 200	___ BIO 216	___ MTH 151
___ CHM 220	___ CHM 205	___ BIO 102	___ BIO 201	___ BIO 260	___ PHY 112/132

- The following is a list of NCC Science faculty who are *considering* working with one or more students this summer. Please rank them in order of your preference from 1-6, with **1 being the faculty member with whom you are MOST interested in working**. On p. 2 of this application packet you will find short descriptions of the research interests of each of these faculty. (*More information at www.noctrl.edu/biology or www.noctrl.edu/chemistry; click "Research"*)

___ **Dr. Jeff Bjorklund** *Bio-organic chemistry.*

___ **Dr. Paul Bloom** *Experimental Particle Physics.*

___ **Dr. Paul Brandt** *Inorganic chemistry.*

___ **Dr. David Horner** *Physical chemistry, chemical physics.*

___ **Dr. Jeff Jankowski** *Analytical Chemistry.*

___ **Dr. Nancy Peterson** *Biochemistry and neuroscience.*

___ **Dr. Jon Visick** *Microbiology.*

In most cases, students selected for Summer Research will be paid a \$2,500 stipend for eight weeks of work, from June 9th to August 1st. Most labs expect a minimum of 30-35 hours of work per week. On-campus housing can be arranged but you will have to pay for the housing out of your stipend.

Will you require on-campus housing? ___yes ___no ___not sure

Please see the next page of this form for information on two summer research fellowships! Check below if you would like to be considered, and be sure to include the additional application materials specified.

___ I would like to be considered for the Kotten Research Award (\$3,000 stipend)

Research Interests Summer 2008

Dr. Jeff Bjorklund *Bio-organic chemistry*: (1) Use of quantitative NMR to analyze complex mixtures produced from yeast fermentations and the Maillard reaction. (2) Investigation of transesterification reaction processes (3) Organic synthesis

Dr. Paul Bloom *Experimental Particle Physics*: Search for radial excitations of psuedoscalar and vector mesons through an extended maximum likelihood analysis of the BaBar dataset. Construction of a Linux based distributed scientific computing cluster at NCC (in collaboration with Dr. David Horner).

Dr. Paul Brandt *Inorganic chemistry*: using Green Chemistry for organometallic synthesis. Synthesize compounds, one of which is an ionic liquid, to separate normally difficult product mixtures.

Dr. David Horner *Physical chemistry, chemical physics*: (1) NMR investigation of the rate of dissociation of HSO₃⁻. (2) Development of thermal lens calorimetry experiment for CHM 340. (3) Interfacing lab equipment to the PC using LabView software. These projects will likely begin in early July.

Dr. Jeff Jankowski *Analytical chemistry*: Using instrumental methods to (1) support chemical analyses for the Indy Racing League, (2) investigate the chemical nature of a "hazing phenomenon" observed in artifact display cases at the Field Museum of Natural History, and (3) develop a micro-particle sampling protocol for chemical microscopy with McCrone Associates (Westmont, IL)

Dr. Nancy Peterson *Biochemistry and neuroscience*: (1) investigations on the mechanism of excitotoxicity of the quisqualic acid by using GC/MS to detect amino acids in brain slices. (2) Construction of a cDNA library from *Ambystoma sp.* tail tissue.

Dr. Jon Visick *Microbiology*: using genetic and molecular techniques to study protein repair and its effect on aging (long-term survival) of *E. coli* bacteria. Two NIH-funded full-time positions may be available this summer in addition to 2-3 NCC-funded part-time stipends. If you are interested in these full-time positions, please talk to Dr. Visick

Irvin A. Koten Research Award

An endowed fund established in honor of Dr. Irvin A. Koten's long and distinguished teaching career at North Central College will provide a \$3,000 stipend to support eight weeks of full-time summer research for an outstanding sophomore or junior chemistry or biochemistry major. More information will be available shortly on the chemistry Web site.

Selection requirements:

- Declared major in Chemistry (preferred) or Biochemistry
- Completed organic chemistry sequence by the beginning of summer
- Sophomore or junior status by the beginning of summer
- Cumulative GPA 2.75 or higher
- Commitment to spend a minimum of 40 hours/week on the research project for 8 weeks and to write a report at the end of the summer.
- Application form, resumé and cover letter.
- 250- to 500-word essay discussing why you are a good candidate for the Irvin A. Koten Research Award.