



DEPARTMENT OF GEOGRAPHY

INDIANA UNIVERSITY
College of Arts and Sciences
Bloomington

Areas of Study

- Atmospheric Science
- Geographic Information Science
- Human-Environment Interaction
- Human Geography

Degrees Offered

- Master of Arts (M.A.)
- Master of Science (M.S.)
- Master of Arts for Teachers (M.A.T.)
- M.A./M.S. in Geography/M.S. in Environmental Science
- Doctor of Philosophy (Ph.D.)

Graduate Admission Requirements
Summary of Financial Opportunities
Graduate Student Activities
Department of Geography Faculty

October 2008

Graduate Degrees

1. The Master of Arts Program (M.A.)

The M.A. degree is research oriented. M.A. graduates either continue to the Ph.D. or obtain government or private sector employment, most frequently involving planning or research.

Students should have an undergraduate education adequate for successful graduate study in geography. We attract and encourage students from a wide variety of undergraduate backgrounds. A review committee will examine the student's record and recommend remedial work if necessary. Remedial courses may be audited.

A. General Graduate School Requirements: All M.A. students must fulfill the general Graduate School requirements, as described in the *Graduate School Bulletin*, as well as the requirements of the Department of Geography. Thirty credit hours are required for the M.A., all of which may be taken in a single department; at least 20 of the 30 credit hours must be earned in the major field. A minimum of 9 hours of course work or at least three courses in the major field (excluding thesis) must be numbered 500 or above.

B. Departmental Requirements and Policy: The M.A. program is designed to develop students' capacity for research and scholarship through a combination of course work and individual research.

1. Course work: Course work consists of the core curriculum (10 hours); a concentration area (minimum of 9 hours); and electives. Electives may be chosen within the department or in cognate disciplines.

a. Core Curriculum: The core curriculum consists of Research Problems in Geography (G500), Research Problems in Geography, II (G501), and Advanced Quantitative Methods in Geography (G504). A grade of B is required in each of these core courses. If a grade lower than a B is received in one of the core courses the student must retake the course by audit and demonstrate a B level of proficiency.

b. Concentration Area: Each candidate must select one course of study for concentration. The topical fields available in the department are Human-Environment Interaction and Human Geography. Each candidate must complete a minimum of 9 graduate hours in his or her field, including at least one graduate seminar. Regional offerings on Africa, Western and Eastern Europe, Latin America and the Caribbean, and East Asia are available and may be taken as supplementary courses and as areas of applied topical research.

2. Courses in Research Methods: Advanced study in geography normally requires a background in research

methods. Entering students are expected to have completed basic courses in statistics and college-level mathematics although these courses may be taken during the early semesters of graduate study.

3. Thesis or Research Papers Option: Students may choose between a M.A. thesis (G850) or two research papers (G845). The thesis or research papers are written under the direction of the student's advisor and two other faculty members chosen in consultation with the advisor. The research should embody original research on a topic of limited scope chosen in consultation with the advisor.

Up to 6 hours of credit in G850 or G845 (of the 30 hours required for the M.A.) may be taken to complete the thesis or research paper requirement.

All M.A. theses and research papers must comply with the style regulations of the *Graduate School Bulletin*. A bound copy of the thesis or research papers must be filed with the Geography and Map Library.

4. Final Examination: A final oral examination is required of all M.A. students. The examination committee will be composed of the student's advisor and at least two other faculty members from the Department of Geography. The examination may cover the student's research, major field of interest, and other topics in geography. The examination committee will pass or fail the candidate and will also recommend whether the student should continue for the Ph.D. degree.

C. Normal Progress to the Degree: Students should expect to complete all M.A. degree requirements within two academic years. The core curriculum is normally completed during the first year of residence. The following example illustrates progress toward the M.A. degree.

First Semester:

- Director of Graduate Studies, in consultation with other appropriate faculty, is responsible for advising.
- Required Courses: *G500* (and *G588* if necessary), plus additional electives for a total of 10 to 12 credit hours.

Second Semester:

- Required Courses: *G501*, *G504*, plus additional graduate courses, which should include at least one 600-level seminar (if available), for a total of 9 to 12 credit hours.
- Student selects Advisory Committee (during the first two weeks of the semester) consisting of:
 - Major advisor from the Department of Geography
 - At least two additional faculty members, one of which may be from outside the department

- Student files for Human Subjects clearance on proposed research and outcome of filing is placed in student's file in departmental office.¹
- Student meets with the Advisory Committee to obtain approval of topic for M.A. thesis (or papers if that option is selected).
- Student prepares proposal for the M.A. thesis (or for the two papers if that option is selected).
- Proposal(s) must be accepted by the student's Advisory Committee and the instructor of *G501*.

Summer Sessions:

- It is expected that graduate students will spend their summer involved in readings and research related to their thesis or papers.

Third Semester:

- Additional Course Work: 6 to 9 graduate credit hours (including the seminar, if not completed above).
- At some time during the third semester M.A. students should present an informal, oral progress report on thesis or research papers within the department.

Fourth Semester:

- Up to 6 credit hours of *G845* or *G850* should be taken.
- By the end of the sixth week of the semester, student must submit an Application for Advanced Degree form to the University Graduate School.
- Student submits copy of thesis to all members of the Advisory Committee.
- With approval of the Advisory Committee, student schedules Oral Defense to occur at least two weeks before the end of the semester.
- One week prior to the scheduled defense, the thesis advisor or M.A. research paper advisors notify departmental faculty of the defense; student must supply the Main Office of the department a copy of the thesis or papers for faculty to review.
- Oral Defense takes place.
- The Advisory Committee decides whether student should pass, fail, or pass with the recommendation that the student continue at IU toward the Ph.D.
- Following the exam the M.A. thesis advisor, or the principal advisors of the student's M.A. research papers, decide grade for *G850* or *G845*, as appropriate.
- One day after defense, the research advisor(s) notify the departmental faculty of the results of the Oral Defense.
- Assuming successful completion of the exam, the student must supply two copies of the thesis or research papers to the Geography and Map Library.

* Exceptions to the procedures above must be approved by the department's Director of Graduate Studies.

The department discourages anyone from initiating more than 40 hours of graduate credit before completing the M.A. examination.

D. Advising: The first advising session will be prior to registration and will be devoted to working out the course program for the first semester and will be in consultation with the graduate advisor and other faculty. The student should identify an advisor who shares their research interests during the first semester of residence. Advising for the second semester should be done in consultations with the research advisor and director of the graduate program.

¹Note the exact timing of this will be dependent on each individual's research. It is essential that you ensure you are in compliance.

2. The Master of Science Program (M.S.)

The M.S. degree is research oriented. M.S. graduates either continue to the Ph.D. or obtain governmental or private sector employment.

Students should have an undergraduate education adequate for successful graduate study in their field of research. We attract and encourage students from a wide variety of undergraduate backgrounds. A review committee will examine the student's record and recommend remedial work if necessary. Remedial courses may be audited.

A. General Graduate School Requirements: All M.S. students must fulfill the general Graduate School requirements, as described in the *Graduate School Bulletin*, as well as the requirements of the Department of Geography. Thirty credit hours are required for the M.S., all of which may be taken in a single department; at least 20 of the 30 credit hours must be earned in the major field. A minimum of 9 hours of course work or at least three courses in the major field (excluding thesis) must be numbered 500 or above.

B. Departmental Requirements and Policy: The M.S. program is designed to develop students' capacity for research and scholarship through a combination of course work and individual research.

1. Course work: Course work consists of the core curriculum (10 hours); a concentration area (minimum of 9 hours); and electives. Electives may be chosen within the department or in cognate disciplines.

c. Core Curriculum: The core curriculum consists of Research Problems in Geography (G500), Research Problems in Geography, II (G501), and Advanced Quantitative Methods in Geography (G504). A grade of B is required in each of these core courses. If a grade lower than a B is received in one of the core courses the student must retake the course by audit and demonstrate a B level of proficiency.

d. Concentration Area: Each candidate must select one area of study for concentration. The topical fields available in the department are Atmospheric Science and Geographic Information Science. Each candidate must complete a minimum of 9 graduate hours in their field, including at least one graduate seminar.

2. Courses in Research Methods: Advanced study in geography normally requires a background in research methods. Entering students are expected to have completed basic courses in statistics and college-level mathematics although these courses may be taken during the early semesters of graduate study. In addition, students may expect to take one or more courses in mathematics and/or computer programming.

3. Thesis or Research Papers Option: Students may choose between a M.S. thesis (G850) or two research papers (G845). The thesis or research papers are written under the direction of the student's advisor and two other faculty members chosen in consultation with the advisor. The research should embody original research on a topic of limited scope chosen in consultation with the advisor. Graduate School requirements for the format of the M.S. thesis are described in the *Graduate School Bulletin*.

Up to 6 hours of credit in G850 or G845 (of the 30 hours required for the M.S.) may be taken to complete the thesis or research paper requirement.

All M.S. theses and research papers must comply with the style regulations of the *Graduate School Bulletin*. A bound copy of the thesis or research papers must be filed with the Geography and Map Library.

4. Final Examination: A final oral examination is required of all M.S. students. The examination committee will be composed of the student's advisor and at least two other faculty members from the geography department. The examination may cover the student's research, major field of interest, and other topics in geography. The examination committee will pass or fail the candidate and will also recommend whether the student should continue for the Ph.D. degree.

C. Normal Progress to the Degree: Students should expect to complete all M.S. degree requirements within two academic years. The core curriculum is normally completed during the first year of residence. The following example illustrates progress toward the M.S. degree.

First Semester:

- Director of Graduate Studies, in consultation with other appropriate faculty, is responsible for advising.
- Required Courses: *G500* (and *G588* if necessary), plus additional electives for a total of 10 to 12 credit hours.

Second Semester:

- Required Courses: *G501*, *G504*, plus additional graduate courses, which should include at least one 600-level seminar (if available), for a total of 9 to 12 credit hours.
- Student selects Advisory Committee (during the first two weeks of the semester) consisting of:
 - Major advisor from the Department of Geography
 - At least two additional faculty members, one of which may be from outside the department
- Student files for Human Subjects clearance on proposed research and outcome of filing is placed in student's file in departmental office.¹
- Student meets with the Advisory Committee to obtain approval of topic for M.S. thesis (or papers if that option is selected).

- Student prepares proposal for the M.S. thesis (or for the two papers if that option is selected).
- Proposal(s) must be accepted by the student's Advisory Committee and the instructor of *G501*.

for the second semester should be done in consultations with the research advisor and director of the graduate program.

Summer Sessions:

- It is expected that graduate students will spend their summer involved in readings and research related to their thesis or papers.

¹Note the exact timing of this will be dependent on each individual's research. It is essential that you ensure you are in compliance.

Third Semester:

- Additional Course Work: 6 to 9 graduate credit hours (including the seminar, if not completed above).
- At some time during the third semester M.S. students should present an informal, oral progress report on thesis or research papers within the department.

Fourth Semester:

- Up to 6 credit hours of *G845* or *G850* should be taken.
- By the end of the sixth week of the semester, student must submit an Application for Advanced Degree form to the University Graduate School.
- Student submits copy of thesis to all members of the Advisory Committee.
- With approval of the Advisory Committee, student schedules Oral Defense to occur at least two weeks before the end of the semester.
- One week prior to the scheduled defense, the thesis advisor or M.S. research paper advisors notify departmental faculty of the defense; student must supply the Main Office of the department a copy of the thesis or papers for faculty to review.
- Oral Defense takes place.
- The Advisory Committee decides whether student should pass, fail, or pass with the recommendation that the student continue at IU toward the Ph.D.
- Following the exam the M.S. thesis advisor, or the principal advisors of the student's M.S. research papers, decide grade for *G850* or *G845*, as appropriate.
- One day after defense, the research advisor(s) notify the departmental faculty of the results of the Oral Defense.
- Assuming successful completion of the exam, the student must supply two copies of the thesis or research papers to the Geography and Map Library.

* Exceptions to the procedures above must be approved by the department's Director of Graduate Studies.

The department discourages anyone from initiating more than 40 hours of graduate credit before completing the M.S. examination.

D. Advising: The first advising session will be prior to registration and will be devoted to working out the course program for the first semester and will be in consultation with the graduate advisor and other faculty. The student should identify an advisor who shares their research interests during the first semester of residence. Advising

3. Master of Arts for Teachers (M.A.T.)

In order to be admitted to this program, students must hold a baccalaureate degree from a regionally accredited institution. The degree should include sufficient hours in each discipline in which students plan to work to enable them to elect courses carrying graduate credit (see departmental entries for details).

Thirty-six (36) credit hours beyond the baccalaureate degree are required, at least 20 of which must be in the major teaching field, with the remainder allocated either to additional work in the major or to one or more minors. Certain interdepartmental programs have specific minor requirements (for details see the individual program statements). Although not specifically required, education may be offered as a minor in any M.A.T. program. Each candidate must possess a teacher's certificate (from Indiana or some other U.S. state) by the time the degree is conferred, with the exception of international students, who must be certified by their department. Graduates of Indiana University who do not hold certificates should have their credentials evaluated for teaching certification purposes by either the School of Education or the department in which they are working toward their degree. Students who graduate from institutions outside the state of Indiana and who do not hold a teacher's certificate must send their credentials directly to the Teacher Training and Licensing Commission, State House, Indianapolis, for evaluation; such students may not be admitted into the program nor

curricula planned for them until the state evaluation is a part of the student's official record at Indiana University.

Course work for the M.A.T. that is used for provisional certification may not also be used for professional certification. Professional certification requires at least 8 credit hours of graduate work in the area chosen for certification. A student must also take 6 credit hours of graduate professional education beyond those graduate education courses substituted above to meet the minimum provisional certification requirements.

M.A.T. degrees are available in most areas represented in the high school curriculum. Interested students should consult the chairperson of the department of the division concerned to discuss programs of study.

Admission Requirements: A full undergraduate major in geography is not required, but applicants should have had introductory courses in human, physical, and regional geography and cartography.

Program: Required courses for the M.A.T. degree are G588, G500, and/or equivalents, and a graduate-level seminar. Beyond these requirements, an individual program of study will be arranged for each student. A general description of the M.A.T. requirements is found in the Graduate Bulletin.

4. Combined Master of Arts in Geography/Masters of Science in Geography and Master of Science in Environmental Science (M.A./M.S./M.S.E.S.)

Description: This program is a three-year, 60 credit-hour program that qualifies the student for two Master's degrees. A student must make application to and be accepted by the School of Public and Environmental Affairs (SPEA) for study toward the Master of Science in Environmental Science (M.S.E.S.) degree and by the Department of Geography and the Graduate School for study toward the M.A. or M.S. degree. The student must select an advisory committee of at least three faculty members representing both Geography and SPEA. The composition of the committee must be approved by the Director of Graduate Studies in Geography and by the Director of the M.S.E.S. program in SPEA.

Requirements: Students in the combined M.S.E.S./M.A. or M.S. Degree Program must fulfill the current course requirements in SPEA and Geography.

Geography Graduate Courses (13 cr.)

GEOG G500	Research Problems in Geography
GEOG G501	Research Problems in Geography II
GEOG G504	Advanced Quantitative Methods in Geography
GEOG G602	Topical Seminar in Atmospheric Science

plus

Geography Electives (11 cr.) Additional graduate courses in the field of concentration:

GEOG G505	Hydroclimatology
GEOG G507	Climate Dynamics
GEOG G533	Synoptic Meteorology and Climatology
GEOG G534	Air Pollution Meteorology
GEOG G531	Dynamic Meteorology
GEOG G535	Topics in Mesoscale Meteorology
GEOG G570	Micrometeorology
GEOG G550	Instrumentation and Field Methods in Atmospheric Science
GEOG G571	Topics in Micro and Boundary Layer Meteorology
GEOG G572	Advanced Instrumentation and Field Methods in Atmospheric Science
GEOG G577	Topics in Atmospheric Science
GEOG G588	Applied Spatial Statistics
GEOG G589	Atmospheric Data Analysis
GEOG G602	Topical Seminar in Atmospheric Science (more than once)
GEOG G830	Readings in Geography
GEOG G840	Research in Geography

Research (6 cr.)

Students may opt for either a research project, thesis, or two research papers and complete up to six hours (of the 60 required credit hours) of research in:

- SPEA E625 (Research in Environmental Science) if they choose a research project;
or
- GEOG G850 (Masters Thesis) if they choose the thesis option;
or
- GEOG G845 (Masters Papers) if they choose the option of research papers.

Normal Progress to the Degree: Students should expect to complete all M.A./M.S./M.S.E.S. degree requirements within three academic years. The core curriculum is normally completed during the first year of residence. The following example illustrates progress toward the M.A./M.S./M.S.E.S. degree.

First Semester:

- Director of Graduate Studies, in consultation with other appropriate faculty, is responsible for advising.
- Required Courses: *G500* (and *G588* if necessary), plus additional electives for a total of 10 to 12 credit hours.

Second Semester:

- Required Courses: *G501*, *G504*, plus additional graduate courses, which should include at least one 600-level seminar (if available), for a total of 9 to 12 credit hours.
- Student selects Advisory Committee (during the first two weeks of the semester) consisting of:
 - Major advisor from the Department of Geography
 - At least two additional faculty members, one of which may be from outside the department
- Student files for Human Subjects clearance on proposed research and outcome of filing is placed in student's file in departmental office.¹
- Student meets with the Advisory Committee to obtain approval of topic for M.S. thesis (or papers if that option is selected).
- Student prepares proposal for the M.S. thesis (or for the two papers if that option is selected).
- Proposal(s) must be accepted by the student's Advisory Committee and the instructor of *G501*.

Summer Sessions:

- It is expected that graduate students will spend their summer involved in readings and research related to their thesis or papers.

Third Semester:

- Additional Course Work: 6 to 9 graduate credit hours (including the seminar, if not completed above).
- At some time during the third semester M.S. students should present an informal, oral progress report on thesis or research papers within the department.

Fourth Semester:

- Up to 6 credit hours of *G845* or *G850* should be taken.
- By the end of the sixth week of the semester, student must submit an Application for Advanced Degree form to the University Graduate School.
- Student submits copy of thesis to all members of the Advisory Committee.
- With approval of the Advisory Committee, student schedules Oral Defense to occur at least two weeks before the end of the semester.
- One week prior to the scheduled defense, the thesis advisor or M.S. research paper advisors notify departmental faculty of the defense; student must supply the Main Office of the department a copy of the thesis or papers for faculty to review.
- Oral Defense takes place.
- The Advisory Committee decides whether student should pass, fail, or pass with the recommendation that the student continue at IU toward the Ph.D.
- Following the exam the M.S. thesis advisor, or the principal advisors of the student's M.S. research papers, decide grade for *G850* or *G845*, as appropriate.
- One day after defense, the research advisor(s) notify the departmental faculty of the results of the Oral Defense.
- Assuming successful completion of the exam, the student must supply two copies of the thesis or research papers to the Geography and Map Library.

* Exceptions to the procedures above must be approved by the department's Director of Graduate Studies.

The department discourages anyone from initiating more than 40 hours of graduate credit before completing the M.S. examination.

D. Advising: The first advising session will be prior to registration and will be devoted to working out the course program for the first semester and will be in consultation with the graduate advisor and other faculty. The student should identify an advisor who shares their research interests during the first semester of residence. Advising for the second semester should be done in consultations with the research advisor and director of the graduate program.

The student's Advisory Committee must approve the written proposal for the research project, thesis, or research papers. The proposal should include a statement of the research problem, a brief analysis of the most relevant literature, and a tentative design for execution of the research. The scope of the research should be such that the research could be reasonably completed within the credit hours allowed. Once the proposal has been approved, the student may make subsequent design modifications in cooperation with the Advisory Committee. The research must be completed in the form of a written report, thesis, or two research papers. The report, thesis, or research papers usually include revised material from the original proposal as well as properly analyzed results and discussion. The student must defend the research before the Advisory Committee. The initial part of this defense may be a public seminar. It is not necessary that the research results support the initial hypotheses. Rather the defense and written report, thesis or research papers will be evaluated on the student's mastery of the skills of problem delineation, research design, research techniques, data analysis, elucidation of the significance of results, and written and oral presentation. The Advisory Committee will pass or fail the student.

The research report, thesis, or research papers must be acceptable to the student's Advisory Committee, the Director of Graduate Studies in Geography (as a thesis or two research papers) and the Director of the M.S.E.S. Program (as appropriate for the M.S.E.S. Professional Experience requirement.) All theses and research papers must comply with the style regulations of the *Graduate School Bulletin*. Students must file a bound copy of their research report or thesis with the Geography and Map Library. Students completing two research papers must submit one (bound) copy to the Geography and Map Library.

¹Note the exact timing of this will be dependent on each individual's research. It is essential that you ensure you are in compliance.

5. The Doctor of Philosophy Program (Ph.D.)

The Ph.D. program exists to develop scholars of the highest competence. Ph.D. students are expected to develop the ability to carry out independent and original research of high quality and to gain command of a broad field of learning. The program emphasizes independent research and study along with formal course work.

General Graduate School Requirements: Ph.D. students must fulfill Graduate School requirements as well as requirements of the Department of Geography. Graduate School requirements in this document are not exhaustive and students should refer to the *Graduate School Bulletin* for a full statement of the requirements and procedures of the Graduate School.

A. Admission: A Master's degree (in geography) from Indiana University, or an equivalent degree from another institution is required for admission to the Ph.D. program. Candidates for admission should also demonstrate a capacity for independent scholarship. We attract and encourage students from a wide variety of undergraduate backgrounds.

B. Requirements: A total of 90 semester hours of graduate study (including 30 Masters hours) is required for the Ph.D. degree. Seventy hours of course work are required plus twenty hours for the Ph.D. thesis (G860). The graduate course work should include at least two seminars. Credit is allowed for graduate study at other institutions but it is necessary to make a formal application to the Graduate School for transfer of credit. Students are admitted to candidacy for the Ph.D. after completing a set of written and oral qualifying examinations. The degree is conferred after the student completes an acceptable dissertation on a topic of substantial scope and significance.

The Major. Each student in the Ph.D. program must select a major within the field of geography that the department specializes:

- Atmospheric Science
- Geographic Information Science
- Human-Environment Interaction
- Human Geography

These fields are broadly defined and it is usual for students to concentrate on a subfield within the major field.

Details of the major program should be worked out with the student's advisor. The student must complete a minimum of 12 graduate hours beyond the Master's in the major area selected. These 12 concentration hours should include at least one seminar and they may include research and reading courses.

The Minor. Each student must select a minor field outside the Department of Geography unless special approval for an

internal minor is obtained from the department and the Graduate School. The minor should be closely related to the internal major and should be used to provide additional breadth and depth in the individual's program. The minor fields acceptable to the Graduate School are the areas of study listed in the *Graduate School Bulletin*. Students should note that the determination of the minimum requirements and examination procedure (if any) for the minor is entirely at the discretion of the minor department or program.

Core Courses. A student who is admitted to the Ph.D. program with a Master's degree from another institution should expect to take the courses in the core curriculum (G500, G501, and G504) as part of the Ph.D. program.

Courses in Research Methods. Advanced study and research in geography normally requires an extensive background in research methods. Various departments at Indiana University offer undergraduate and graduate level courses in mathematics and statistics. Ph.D. students in the geography department are expected to use these offerings to develop sufficient background to pursue advanced research in their major areas.

C. Advising and the Advisory Committee: New students will be advised by the Graduate Program Committee during their first semester in residence. An advisory committee will be formed during the student's first year in the program, consisting of:

- 1) a major advisor from the geography faculty;
- 2) at least two other faculty members from the geography department;
- 3) a faculty member from outside the department, who represents the outside minor.

The Advisory Committee: The student should choose an advisor who is willing to serve as chair of the advisory committee. The remaining members of the committee are selected in consultation with the advisor. The advisory committee counsels the student, approves their program, and conducts the Ph.D. qualifying examination. At least two members of the advisory committee must be members of the Graduate Faculty.

The Research Committee: A research committee is formed after completion of the Ph.D. qualifying examination. The research committee is formed by the student in consultation with an advisor, who is willing to supervise the student's dissertation research. To initiate research for the dissertation, the student chooses a professor who will agree to direct the dissertation. The department shall then recommend to the Dean for approval a Research Committee composed of the chosen director (who will also normally serve as chairperson of the committee), two or more

additional faculty members from the major department, and a representative of each minor. All chairpersons of research committees and/or directors of research must be Full Members of the Graduate Faculty. All members of a Research Committee must be members of the Graduate Faculty, and at least half of the members of the committee must be Full Members of the Graduate Faculty (see *Graduate School Bulletin* for exceptions).

D. Admission to Candidacy: A Ph.D. student is admitted to candidacy after meeting all course requirements, completing the minor requirements as determined by the minor department, and passing a qualifying examination.

The Qualifying Examination: A student is not eligible to take the qualifying examination until he or she has completed all course work requirements for the major field and satisfied the requirements for the outside minor. Normally, the examination is taken after the student has completed all course work for the Ph.D. All such work offered in partial fulfillment of degree requirements must either have been completed within seven consecutive calendar years preceding the passing of the Qualifying Examination or be revalidated.

The Qualifying Examination shall cover the major and may, at the discretion of the minor department(s) or the interdepartmental committee, cover the minor subjects as well. The student should update their Advisory Committee, if necessary, for the qualifying exam. In the semester prior to taking the exam (the fourth semester) a statement of understanding of the areas to be examined is developed by all committee members and the student. The student informs the director of graduate studies that this has been done.

The following are the procedures for Ph.D. qualifying examinations:

1. Scale of the Written Examination: The written portion of the comprehensive examination will be such that the student can reasonably expect to complete the examination within two days (8-12 hours). The chair of the advisory committee is responsible for soliciting questions from the committee members and assembling the exam. Where there are special circumstances such as language difficulties, the chair of the advisory committee may, in consultation with the director of graduate studies, arrange for the examination to be taken over more than two days.

2. Resource Material: The written examination is to be completed without consulting notes, books, or other resource materials.

3. Examination Schedules: Students should plan on taking the exam in their fifth semester. Written comprehensive examinations will be scheduled for the third week of each Fall and Spring semester. Students should not expect to take

examinations during the summer. The qualifying examination must be passed at least eight months before the date the degree is awarded.

4. Oral examination: The oral portions of the comprehensive examinations will be scheduled for the fifth week of the semester. The oral examination follows within three weeks of the written examination and will cover the major and minor fields (at the option of the minor department) as well as elements of the core curriculum and the student's ability to formulate research problems and design research. Approximately two hours will be reserved for the oral examination. It is usual for the oral examination to touch on aspects of the student's tentative dissertation research. The oral examination is open to all members of the faculty but decisions rest with the advisory committee.

Students who fail the qualifying examination are normally allowed to retake it only once.

Continuing Enrollment: Students who have passed the qualifying examination must enroll each semester (excluding summer sessions) for any remaining course work or dissertation credits. Once students have accumulated 90 hours in completed course work and deferred dissertation credits, they must enroll for a minimum of one hour of graduate credit (G901) each semester until the degree is completed. Failure to meet this requirement will automatically terminate the student's enrollment in the degree program.

E. The Ph.D. Thesis: Every candidate for the Ph.D. in geography must write a Ph.D. thesis in his or her major field. The thesis should represent original research of high quality on a topic of significant scope.

Approval of the Dissertation Topic: Preliminary dissertation research approval is obtained at a meeting with the advisory committee which shall take place within eight weeks of the oral examinations. Members of the research committee who are not also members of the advisory committee should also attend this meeting. The student should expect to present the major points of his or her research problem; to discuss the major elements of the research design, and to receive the advice and criticism of the committee members.

Once a student has received preliminary approval for the thesis research he or she should prepare and distribute copies of the research proposal to the faculty and graduate students at least one week prior to the oral presentation of the proposal to the entire department. The student will present the proposal orally in order to receive comments and suggestions from faculty and graduate students. Any necessary changes in the proposal will be determined by the Research Committee after the oral presentation. Approval of the research proposal does not prevent the student from

making reasonable changes in the research design as conditions warrant.

Prospectus of the Dissertation and Approval of the Committee: After consultation with and approval by the dissertation director and the Research Committee the students will submit to the Graduate School a one or two page prospectus of the dissertation research. The proposed dissertation title and the Research Committee membership will be distributed to the Graduate Faculty.

The membership of the Research Committee and the dissertation prospectus must be approved by the Graduate School at least six months before the defense of the dissertation.

Graduate School Requirements: The dissertation must be an original contribution to knowledge and of high scholarly merit. The candidate's research must reveal critical ability and powers of imagination and synthesis. Students should refer to the *Graduate School Bulletin* for a description of the required format for the Ph.D. dissertation.

Dissertation Requirements: The dissertation must be an original contribution to knowledge and of high scholarly merit. A student may choose to present their doctoral dissertation in one of two formats. The format selected should be discussed and approved by the committee before the document is submitted to the committee for evaluation.

- **Traditional dissertation format:** A student may choose to prepare a traditional dissertation in multi-chapter format. Typically, a traditional dissertation contains: 1) an introduction that states the research objectives, 2) a review of pertinent literature, 3) a description of methods used, 4) one or more chapters presenting research results, including discussions of those results, and 5) concluding remarks and discussion of the significance of the research. The dissertation volume should also contain a list of references cited in the entire volume, and appendices as appropriate. The dissertation must be of publishable quality, either as a book or as content that can be developed into multiple refereed journal articles.
- **Article-style or 'research portfolio' dissertation format:** A student may choose to prepare a dissertation comprising a series of journal articles. As with the traditional dissertation format, these dissertations must be based upon research completed while the student is enrolled at Indiana University. At a minimum, the dissertation must be comprised of three journal articles, at least two of which are accepted for publication, in press, or in print. The articles must appear in nationally or internationally recognized journals that use independent reviewers. On at least two of the articles the student must be the first author. It is expected that additional chapters comprising work in preparation or in review will also be included. The dissertation must be a unified work and include a sequence of articles

around a theme, with a comprehensive review of the literature that demonstrates an in-depth understanding of the unifying framework. The over-arching theme for the dissertation must be the student's original idea. There will be an introductory chapter to describe the objectives of the studies, clarify how the articles are related, and explain their significance. An additional chapter at the end of the dissertation should serve as a summary making clear the importance of the studies, integrating the major findings, and discussing the implications for the overall topic. This final chapter also may describe possible new research directions suggested by the contents of the dissertation. A comprehensive reference list containing all references from the introduction, overall conclusion, and any supplementary sections should be included. Appendices may be used to provide detailed information about methods or results not included in the more concisely written materials. As with regular dissertations, students must select a prominent style guide appropriate to their field of study and whose provisions must be applied to the manuscript as a whole. Hence when articles have been prepared using the author and style guide issued by the journal(s), the articles must be revised as appropriate to conform with the overall style of "A Guide to the Preparation of Theses and Dissertations". For each journal article the full citation must be provided.

Whether the traditional dissertation format or the research portfolio format is chosen, it is the student's responsibility to follow the format, production and administrative requirements for completion of the dissertation as set by the University Graduate School policy.

Defense of the Dissertation: The student should request an oral defense of the dissertation, in consultation with the Research Committee chairperson, after submitting a copy of the dissertation to each member of the Research Committee. The decision to schedule a defense, which does not amount to approval of the dissertation, is reached by the Research Committee.

Thirty days prior to the scheduled defense of the dissertation, the candidate must submit to the Graduate School a one-page announcement of the final examination. The announcement must follow a format available from the Graduate School. The announcement contains, among other things, a summary of the dissertation (not less than 150 words) which is informative and contains a brief statement of the principal results and conclusions. The announcement must bear the signature of the Research Committee chairperson.

At the end of the oral examination, the Research Committee must vote upon the outcome of the examination; four options are available to the committee: (1) pass, (2) conditional pass, (3) deferred decision, and (4) failure. If

the decision to pass is unanimous, the dissertation is approved once it is received by the Graduate School along with an acceptance page signed by the members of the Research Committee. A bound copy of the dissertation must be filed with the Geography and Map Library. The students must submit and must have received acceptance of his or her dissertation within seven years after passing the qualifying examination. Failure to meet this requirement will result in termination of candidacy and of the student's enrollment in the degree program. Any student whose candidacy lapses will be required to apply to the Graduate School for reinstatement.

Normal progress to the degree:

First Semester:

- Graduate Program Committee is responsible for advising.
- Request for transfer of 30 credit hours from MA degree (or equivalent).
- Identify field for Minor.

Second Semester:

Student selects Advisory Committee consisting of:

- Major advisor from Geography Department;
 - At least two additional faculty members from the Department of Geography;
 - A faculty member representing the Minor.
- Student files for Human Subjects clearance on proposed research and outcome of filing is placed in student's file in departmental office.¹
- Appointment of Advisory Committee Form is completed and forwarded to the College of Arts and Sciences for approval no later than one year after the student has been admitted to the Ph.D. program.

First through Fourth Semester:

- After two full calendar years in the Ph.D. program, completion of 70 credit hours (including transfer credit).
- Required Core Courses: *G500, G501, G504*
- Course Work for the Major:
 - four graduate courses (at least one 600-level seminar).
 - Course Work for the Minor: see requirements specified in the minor program (usually 12 credit hours).
 - Additional Course Work: 6 Credit hours (at least one additional seminar if course work for the Major includes only one 600-level seminar).

Fourth Semester (at the latest):

- Update Advisory Committee, if necessary, for qualifying exam
- Statement of understanding of the areas to be examined developed by all committee members and student.

- Student informs the director of graduate studies that this has been done.

Fifth Semester:

Qualifying Examination

- 3rd week: Written Examination
- 5th week: Oral Examination
- 5th week: Subject to successful completion of qualifying exam: **ADMISSION TO PH.D. CANDIDACY**

Student's Advisory Committee submits a Nomination to Candidacy Form to the Graduate School. Upon approval by the Dean, student is awarded a Certificate of Candidacy.

5th Week

Student selects Research Committee (in consultation with advisor). The Research Committee consists of:

- the director/chairperson of the committee (must be a full member of the Graduate Faculty);
- two or more faculty from the Department of Geography;
- a representative of each minor.

All members of the research committee must be Members of the Graduate Faculty, at least 50% must be Full Members of the Graduate Faculty. *Note:* The Research Committee must be approved by the Dean of the Graduate School.

5-12th week:

- Meet with the advisor and research committee for preliminary approval of dissertation topic.

6-16th week: Research Proposal

- Preparation of Research Proposal.
- Distribution of Research Proposal to Faculty and Graduate Students at least one week prior to oral presentation of Research Proposal.
- Oral Presentation of Research Proposal to the department.
- Approval of Research Proposal: Research Committee determines necessary changes in Research Proposal and approves the Research Proposal.
- Student submits (in consultation with and approval by the Research Committee) a 1-2 page prospectus of the dissertation research to the Graduate School for approval.

Sixth Semester and Beyond:

- Up to 20 credit hours of *G860 Ph.D. Thesis*.
- Once students have accumulated a total of 90 credit hours, they must enroll for a minimum of 1 hour of graduate credit each semester until the degree is completed or in *G901, Advanced Research*.
- Student submits copy of dissertation to all members of the Research Committee.
- In consultation with the Chair of the Research

Committee, student requests Oral Defense.

- The decision to schedule a defense is reached by the Research Committee.
- Thirty days prior to the scheduled defense, student (1) submits a one-page announcement of the final examination/defense to the Graduate School, and (2) the advisor advertises the event in the department.
- Oral Defense

Upon acceptance of dissertation by all members of the Research Committee:

- Student submits dissertation to Graduate School and a bound copy to the Geography and Map Library.
- Student submits a 350-word abstract to the Graduate School.

¹Note the exact timing of this will be dependent on each individual's research. It is essential that you ensure you are in compliance.

Graduate Admission Requirements

Departmental and University materials required to be considered for admissions are:

- Completed On-Line Application Form
- Graduate Record Exam (GRE): Minimum of one score of at least 600 or better on the verbal or quantitative sections, and 4.5 or better on the analytical section
- Undergraduate Grade Point Average (GPA): Minimum of 3.0 on 4.0 scale (a B average)
- 3 Letters of reference
- Statement of Research Interests: Once you have met all of the basic admission standards, the "Statement of Research Interests" is one of the most critical parts of your application on which you will be evaluated for admission and funding. In addition to clearly stating your own research interests and expertise, your statement should reflect why our program is a good fit to your future goals. You are strongly encouraged to identify in your statement faculty members and/or research areas that you would like to work in and with.
- International students (whose native language is not English) TOEFL exam: Minimum of 600 (>249 CBT, >99 IBT). Minimum of 620 (>260 CBT, >104 IBT) for Financial Aid.

Summary of Financial Aid Opportunities

Competitive opportunities for funding:

1. *Associate Instructorships (AI)*

- **Laboratory Instructors and Discussion Instructors:** Responsibilities include meeting laboratory/discussion sections and holding office hours and help sessions; attending lectures; setting up labs; proctoring exams; grading labs, papers, exercises, and exams as necessary; and attending weekly organizational meetings with the instructor in charge of the course.
- **Independent Instructors:** Responsibilities include the independent organization and teaching of a course within the department including the promulgation of syllabus and choice of course text; the preparation and presentation of lectures; the composition and grading of exams, exercises and labs.

These are 0.5 FTE positions (20 hrs per week) with a stipend, fee scholarship, and health insurance.

2. **Research Assistantships (RA):** These are funded by individual faculty research funds. The exact award is dependent on the faculty member. These are normally at least financially equivalent to an AI position.
3. **Fellowships (see lists on next pages):** There are a number of Indiana University fellowships that are available to students at various stages in their graduate careers. The Department will nominate appropriate incoming students for Awards. To be nominated for such awards as the Chancellor's Minority Fellowship, Fellowships for underrepresented students, and Women in Science Fellowship it is critical that we have a **completed application by the beginning of January**.

Students are strongly encouraged to apply for external fellowships and use them at Indiana University. Indiana University in many cases will provide a supplement to these fellowships. Please contact us for further details. In addition the University provides support in Grant writing, and finding sources of funds through the GradGrant Center.

Summer Funding: The department normally provides additional funds to students in the summer in the form of Associate Instructorships; Research Assistantships and Fellowships. These are available on a competitive basis.

Length of Financial Aid for Departmental AI positions, given adequate progress

- Masters students - 2 years
- Ph.D. students - 4 years

Indiana University Internal Fellowship Opportunities

Once accepted by a graduate program at Indiana University, you will automatically be considered for the awards described below. There is no need to obtain separate fellowship applications prior to acceptance in your department. For fellowships awarded by external agencies, you will need to request application materials.

- **Educational Opportunity Fellowship**

The goal of the Educational Opportunity Fellowship (EOF) is based on the premise that some promising students do not fare well in conventional competition for graduate fellowships. Common examples are students who have attended marginally adequate or inadequate schools; who have been required to work excessively while attending school; or whose social and economic background make acquiring education an unreasonably difficult enterprise. To qualify for the EOF, an individual must be (1) admitted for or continuing with full-time graduate study at Indiana University at the master's or doctoral level; (2) a U.S. citizen or permanent resident; (3) in acute financial need; (4) a student of promising academic ability even though educational and/or economic background may have hampered preparation for graduate level work; and (5) a student who is not eligible for the typical kind of fellowship support which is based on demonstrated academic excellence.

EOF stipends are usually \$750 per academic year semester and \$350 for a summer award. The fellowship entitles non resident students to pay tuition at the resident rate up to a maximum of 12 credit hours per academic year semester and 6 credit hours over the summer. Some EOF Fellows are granted stipends for a second year upon reapplication. However, in no case is EOF support available beyond a two-year period. The EOF is designed to supplement student resources and is not intended to provide full support.

- **The Graduate Scholars Fellowship**

The Graduate Scholars Fellowship is for outstanding graduate students entering Ph.D. and M.F.A. programs at Indiana University, Bloomington who are U.S. citizens or permanent residents and members of underrepresented group.

- **The Adam W. Herbert Graduate Fellowship**

The Adam W. Herbert Graduate Fellowship was created through an endowment from the President's Fund for the purpose of supporting graduate study at Indiana University for graduates of Historically Black Colleges and Universities (HBCUs). PhD Fellowships are four (4)-year stipend awards of **\$25,000** per year. Masters fellowships are single year awards of **\$5,000**.

- **Women in Science Fellowship**

The Women in Science Graduate Fellowships are for entering women graduate students who intend to pursue a Ph.D. The Fellowship includes tuition, health insurance, and an annual stipend derived from a departmental research or teaching assistantship and a concurrent fellowship award. The annual stipend ranges from \$20,000-\$25,000 depending on field of study.

- **Ronald E. McNair Graduate Fellowship**

The Ronald E. McNair Graduate Fellowships are for incoming McNair Scholars who intend to earn a Ph.D. The four or five-year fellowship includes tuition, health insurance, and an annual stipend derived from a departmental assistantship and a concurrent fellowship. The stipend ranges from \$18,000-\$25,000 depending the field of study. A letter of support from the Director of the McNair Scholars Program at the student's undergraduate campus is required to document the student's status as a McNair Scholar.

External Funding Opportunities

For fellowships awarded by external agencies, you will need to request application materials from that specific agency. We strongly encourage you to apply for external funding awards and if you need help from Indiana University we will provide the necessary letters.

- **Foreign Language Area Studies Fellowships (FLAS)**

Each year the United States Department of Education (US/DE) awards Foreign Language and Area Studies (FLAS) Fellowships to universities in order to promote the graduate training of students who intend to make their careers in college or university teaching, government service, or other employment where knowledge of foreign cultures is a prerequisite for success.

Recipients of FLAS awards are recommended by the individual program director to the Department of Education. US/DE retains the final right of approval. Each fellowship is tenable for the academic year (for some programs Summer FLAS's are also available) and carries a fixed stipend of \$14,000 (summer stipends are \$2,400). The fellowship also exempts its recipient from paying academic fees for up to twelve credit hours per semester (up to ten in the summer). U.S. citizens and permanent residents are eligible for FLAS fellowships. Holders of FLAS fellowships must undertake full-time study during the tenure of the award and be enrolled in formal language instruction (in the language of the award) and area or international studies courses.

The languages for which FLAS Fellowships are available fall within the following academic programs: African Studies, Center for the Study of Global Change, East Asian Studies, Latin American and Caribbean Studies, Russian and East European Institute, Inner Asian and Uralic Studies, and West European Studies.

- **American Meteorological Society (AMS)**

The AMS offers approximately 50 minority and other undergraduate scholarships and graduate fellowships to the nation's future meteorologists, oceanographers, hydrologists, and climatologists each year. Along with AMS, leading environmental science and service corporations, federal agencies, and members support the scholarships and fellowships. For further information, see: <http://www.ametsoc.org/AMS/amsedu/scholfel.html>.

The AMS especially encourages members of minority and underrepresented groups to participate in its educational programs. In selecting individuals for participation and otherwise administering its programs, the American Meteorological Society will not discriminate on the basis of race, gender, religion, national origin, age, disability, sexual orientation, marital status, and status as a Vietnam Era or disabled veteran.

- **External Awards and Top-Ups**

External awards include the Jacob K. Javits Fellowship, the Ford Fellowship, and the National Science Foundation Fellowship. External multi-year individual fellowship awards, such as a Graduate Fellowship from the National Science Foundation, or a similar award from another agency, then Indiana University Research and University Graduate School (RUGS) will provide an additional \$3,000 per year to top-up the stipend for the student for the duration of the external fellowship.

Application materials for the U.S. Department of Education Jacob K. Javits Fellowships, Ford Fellowships, and National Science Foundation Graduate Fellowships can be obtained by calling the University Graduate School at Indiana University (812) 855-8854.

Graduate Student Activities

The Department of Geography encourages graduate student involvement in university-wide and departmental decision-making. A student representative from the department participates in the Graduate Student Organization, an organization sponsored by the Graduate School. Student representatives also attend faculty and committee meetings within the department.

The Department of Geography emphasizes graduate student research. Students are encouraged to present papers at professional meetings, workshops and conferences, and to publish in regional, national and international journals. Presentations at professional meetings and publications often result from theses and dissertations. A representative sample of recent student publications, theses and dissertations is included at the close of this document.

Bloomington as a place to live

The Bloomington campus was established in 1820. Over the years, the university has grown in size and stature and is recognized as a major center of research and learning in the U.S. and abroad. The Bloomington campus enrolls approximately 38,903 students, including 9,135 graduate students, and is the center of the IU system that reaches out to over 93,775 students on eight regional campuses.

Nestled in the hills of southern Indiana, the campus and community have long been recognized for their beauty and charm. The campus reflects the region's traditional limestone industry, since most of its elegant and historic buildings are constructed of limestone. With a population of over 100,000, the Bloomington MSA offers a wide array of cultural and social opportunities. Many of these opportunities stem from the University's highly regarded schools of Music and Art. The abundance of music and art are equaled by a host of local cultural events and activities, which include festivals, winter and summer sports and a preoccupation with basketball and cycling.

The university and community offer a variety of housing. Graduate dormitories and married student housing are available on campus, while apartments and single family houses are widely available in Bloomington. Applicants should note that housing costs, and the cost-of-living in general, are lower in Bloomington than in many other cities. For more information about Bloomington please visit the website: <http://www.VisitBloomington.com/>.

Department of Geography Faculty
For more information
<http://www.indiana.edu/~geog/people/index.shtml>

Rebecca J. Barthelmie, Ph.D. 1991, East Anglia, Professor

Research Interests: Power losses by wind turbine wakes; Wind energy meteorology and climatology; Atmospheric stability characteristics; Offshore and coastal meteorology; Transport and transformation of atmospheric pollutants; Chemistry of atmospheric aerosols.

Current Projects: Upwind Integrated Project: Flow and wakes in complex terrain and offshore; Climate and Energy Systems: Risks, potential, adaptation; Development and evaluation of downscale tools for near-surface wind climates; Particle nucleation events in the Ohio River Valley; Prediction of waves, wakes and offshore wind (POWWOW).

Representative Publications:

Barthelmie, R.J., Murray, F. and Pryor, S.C. 2008: The economic benefit of short-term forecasting for wind energy in the UK electricity market, *Energy Policy*, **36(5)**, 1687-1696. doi:10.1016/j.enpol.2008.01.027

Barthelmie, R.J., Badger, J., Pryor, S.C., Hasager, C., Christiansen, M.B. and Jørgensen, B.H. 2007: Wind speed gradients in the coastal offshore environment: Issues pertaining to design and development of large offshore wind farms, *Wind Engineering*, **31(6)**, 369-382.

Barthelmie, R.J., Frandsen, S.T., Nielsen, N.M., Pryor, S.C., Rethore, P.E. and H.E. Jørgensen, 2007: Modelling and measurements of power losses and turbulence intensity in wind turbine wakes at Middelgrunden offshore wind farm, *Wind Energy* doi: 10.1002/we.238. **10**, 217-228.

Barthelmie, R.J. 2007: Wind energy: Status and trends. *Geography Compass*, 1 (3), 275-301. doi:10.1111/j.1749-8198.2007.00030.x (Featured in DG Environment News Alert 2007: Science for Environment Policy Newsletter 29 July 2007. Wind energy. Status and trends. <http://ec.europa.eu/environment/integration/research/newsalert/pdf/75na2.pdf>)

Barthelmie, R. J. and Pryor, S.C. 2006: Challenges in predicting power output from offshore wind farms. *Journal of Energy Engineering (Special issue on Sustainable Energy System)*, **132(3)**, 91-103.

Barthelmie, R., Folkerts, L., Larsen, G., Pryor, S.C., Frandsen, S.T. and Schepers, G. 2006: Comparison of wake model simulations with offshore wind turbine wake profiles measured by sodar, *Journal of Atmospheric and Oceanic Technology*, **23(7)**, 888-901.

Pryor, S.C., Schoof, J. and Barthelmie, R.J. 2006: "Winds of change? Projections of near-surface winds under climate change scenarios". *Geophysics Research Letters*, **33(11)**, L11702.

Frandsen, S.T., Barthelmie, R.J., Pryor, S.C., Rathmann, O., Larsen, S. Højstrup, J. and Thøgersen, M. 2006: Analytical modelling of wind speed deficit in large offshore wind farms. *Wind Energy*, **9**, 39-53.

James J. Biles, Ph.D., 2001, Michigan State, Assistant Professor

Research Interests: Economic Geography; Development policy in Latin America; Globalization

Current Projects: Territorial Review of Yucatán, Mexico (collaboration with the Organization for Economic Cooperation and Development). REU Site: Globalization and Sustainable Development in Latin America (funded by the National Science Foundation).

Representative Publications:

Biles, J.J. et al. 2007. Globalization of food retailing in southeastern Mexico: transformation of supply networks and consequences for small-scale agricultural producers. *Journal of Latin American Geography* 6, 2, 55-75.

Scarpaci, J.L. and Biles, J.J. 2007. Globalization and Latin American geography: linking scales of analysis. *Journal of Latin American Geography* 6, 2, 7-10.

Biles, J.J. 2006. Globalization of food retailing and the consequences of walmartization in Mexico, in S. Brunn, ed., *Wal-Mart World: The World's Biggest Corporation in the Global Economy*. New York: Routledge (pp.347-359).

Biles, J.J. 2005. Globalization of banking and local access to financial resources: a case study from southeastern Mexico. *The Industrial Geographer* 2, 2, 159-173.

Biles, J.J. 2004. Export-oriented industrialization and regional development: a case study of maquiladora production in Yucatan, Mexico, *Regional Studies* 38, 5, 517-532.

Biles, J.J. 2003. Using spatial econometric techniques to estimate spatial multipliers: an assessment of regional economic policy in Yucatan, Mexico, *The Review of Regional Studies* 33, 2, 121-141.

Biles, J.J. and B.W. Pigozzi. 2000. The interaction of economic reforms, socio-economic structure and agriculture in Mexico, *Growth and Change* 31, 1, 3-20.

William R. Black, Ph.D. 1969, Iowa, Professor Emeritus

Research Interests: Sustainable Transportation; Transportation Planning, Modeling and Policy

Current Projects: *Sustainable Transportation for Planners and Policy-makers*, New York Guilford Press (forthcoming 2009).

Representative Publications:

Black, W.R. 2007: A New Approach to Distributing Urban Trips: Realistic Representations of Roving with Ranges and Randomness. *Proceedings of the 2007 International*

Conference of the Chinese Institute of Transportation, Taipei, Taiwan.

- Black, W.R., with Pter Nijkamp and Aura Reggiani 2007: La Invesigacion Sobre Transporte A Ambos Lados Del Atlantico: estrategia Y Alcance, in *Las Redes De Transporte Desde Un Enfoque Multidisciplinar*, edited by Juan Carlos Martin, Aura Reggiani and Piet Rietveld, Pamplona: Thomson, Civitas, pp. 127-149
- Black, W.R. with Noriyuki Sato 2007: From Global Warming to Sustainable Transport, 1989-2006. *International Journal of Sustainable Transport*, Vol. 1, No. 2, pp. 73-89.
- Black, W.R. Sustainable Solutions for Freight Transport, to appear in *Globalized Freight Transport: Intermodality, E-Commerce, Logistics and Sustainability*, Thomas R Leinbach and Cristina Capineri (eds.) , Edward Elgar Publishers (forthcoming 2006).
- Black, W.R. with Marina van Geenhuizen (University of Delft) 2006: ICT, Innovation and Sustainability of the Transport Sector, *European Journal of Transport and Infrastructure Research (EJTIR)*, Vol. 6, No. 1, pp. 39-60.
- Black, W.R. with Peter Nijkamp and Aura Reggiani. 2006: Towards New Transatlantic Transport Research: The STELLA-STAR Project on the Move, *European Journal of Transport and Infrastructure Research (EJTIR)*, Vol. 6, No. 1, pp. 1-6.

Student Theses:

- Takatsugu Kobayashi, Ph.D., in progress
- Bradley Lane, Ph.D., in progress
- Philip Roth, Ph.D., in progress
- Bradley Lane, M.A., Planes, Trains, and Automobiles: Land Use, Rail Transit, and Urban Travel in Selected U.S. Cities, 2006
- Nian Liu, M.A., Urban Commuting: A Study of Job/Worker Balance and Traveltime and Travel Distance in a GIS Environment, 2005
- Noriyuki Sato, The Hub-And-Spoke System: Implications of Route Structure and Flight Frequency on Travel Time and Consumer Costs of Air Travel, M.A., 2001
- Jirong Xie, A Neural Network Approach to Modeling and Predicting Intercity Passenger Flows, Ph.D., 2000
- Danielle Longerbone, The Impact of Household Responsibility Characteristics on Working Women's Commute Times, M.A., 2000
- Garth Banninga, Static and Dynamic Analyses of Average Work Trip Travel Times for a Large Set of U.S. Cities, Ph.D., 1998

Constance M. Brown(-Mitic) Ph.D. 1999, McGill University, Assistant Professor

Research Interest: Hydro-Micrometeorology of forested and stress-tolerant/transitional ecosystems; Measurement, sphysical and biogeochemical modeling; Remote Sensing

Current Projects: Surface-Atmosphere-subsurface observation of sub-alpine forest mass (CO₂, water) and energy exchanges. Examining surface-atmosphere

dynamics of cumulative cloud development over semi-arid sky islands

Representative Publications:

- Brown-Mitic, C.M., W.J. Shuttleworth, C. Harlow, J. Petti, E. Burke, R. Bales, 2007. Seasonal Water Dynamics Of A Sky Island, Subalpine Forest In Semi-Arid Southwestern United States, *Journal of Arid Environments*. 69 (2), 49-70.
- Lawford R., M. Bosilovich, S. Eden, S. Benedict, C. Brown, A. Gruber, P. Houser, K. Hsu, J. Huang, W. Lau, T. Meyers, K. Mitchell, C. Peters-Lidard, J. Roads, M. Rodell, S. Sorooshian, D. Tarpley, S. Williams, 2006. US Contributions to the CEOP, *Bulletin of the American Meteorological Society*, 87 (7), 927-939.
- Zehnder, J.A., L. Zhang, D. Hansford, A. Radzan, N. Selover, C.M. Brown, 2006. Using Digital Cloud Photogrammetry to Characterize the Onset and Transition from Shallow to Deep Convection Over Orography, *Monthly Weather Review*, 134, 2527-2546.
- Harlow, R.C., E.J. Burke, R.L. Scott, W.J. Shuttleworth, C.M. Brown, J.R. Petti. 2005: Derivation of temperature lapse rates in semi-arid southeastern Arizona, *Hydrology and Earth System Sciences*, 8(6),1179-1185
- Burke, Eleanor J., Brown-Mitic, Constance M., Shuttleworth, W. James, Petti, Jonathan R., Harlow, R. Chawn, Brooks, Paul D., 2005. Assimilation of Remotely Sensed Data into the Biome-BGC Ecosystem Model to Improve the Prediction of Energy and Carbon Exchange in Southwestern Mountain Island Forests, (submitted)
- Wang, Xin-Ping, Brown-Mitic, Constance M., Kang, Er-Si, Zhang, Jing-Guang and Xin-Rong Li, 2004. Evapotranspiration of *Caragana korshinskii* communities in a revegetated desert area:Tengger Desert China, *Hydrological Processes* (in press).
- Brown-Mitic, Constance, Kaharabata, Samuel and Roger Bales, 2002: Priority Parameters and their Measurements, in *Atmospheric Monitoring*, Hilary I. Inyang (ed.), in *Encyclopedia of Life Support Systems (EOLSS)*, Developed under the Auspices of the UNESCO, EOLSS Publisher, Oxford, UK, <http://www.eolss.net>
- Brown-Mitic, Constance, Macpherson, Ian J., Schuepp, Peter H., Nagrajan, Badrinath, Yau, Peter M.K., and Roger Bales, 2001: Aircraft Observations of Surface-Atmosphere Exchange During and After Snowmelt for Different Arctic Environments: MAGS 1999, *Hydrological Processes*, vol. 15, Issue 18, 3585-3602
- Mitic, Constance M., Massman, William J., Schuepp, Peter H., and Jeffery L. Collett (Jr), 1999: Structural Analysis and flux associations of CO₂, H₂O, heat and ozone over cotton and grape canopies, *Atmospheric Environment*, 33, 1159-1173
- Mitic, Constance M., Schuepp, Peter H., Desjardins, Raymond L., and J.I. MacPherson, 1995: Spatial Distribution and Co-occurrence of surface - atmosphere energy and gas exchange processes over the CODE grid

site, *Atmospheric Environment*, Vol. 29, no. 21, 3169-3180.

Student Theses:

Keshab Parajuli, M.S., in progress

Dennis Conway, Ph.D. 1976, Texas-Austin, Professor Emeritus

Research Interests: Caribbean Migration, Development and Urbanization-Housing and Land Markets; Small Island Development Problems -Tourism Management, Environmental Policies, People Empowerment.

Current Projects: Transnational Migration and Remittance Impacts in the Caribbean; Returning Young Nationals in Trinidad and Tobago; Caribbean Small Island Development Futures.

Representative Publications:

Rob B Potter, Dennis Conway and Joan Phillips (eds) *Experiences of Return Migration: Caribbean Perspectives*. (Forthcoming, London: Ashgate Publishers, Fall 2005)

Conway Dennis (2004) On Being Part of Population Geography's Future: Population-Environment Relations and Inter-science Initiatives. *Population, Space and Place*, 10(4):295 – 302. Online in Wiley InterScience <http://www3.interscience.wiley.com/cgi-bin/jhome/>

Conway Dennis and Benjamin Timms (2003): Where's the Environment in Caribbean Development Thinking and Praxis? *Global Development Studies*, 3(1-2): 91 – 130.

Conway Dennis and Jeffrey H. Cohen (2003): Local Dynamics in Multi-local, Transnational Spaces of Rural Mexico: Oaxacan Experiences. *International Journal of Population Geography*, 9(1): 141-161.

Conway Dennis (2002): Gettin' There, Despite the Odds: Caribbean Migration to the U. S. in the 1990s, *Journal of Eastern Caribbean Studies*, 27(4): 100-134.

John Connell and Dennis Conway (2000): Migration and Remittances in Island Microstates: A Comparative Perspective on the South Pacific and the Caribbean. *International Journal of Urban and Regional Research*, 24.1: 52-78.

Conway, Dennis (2000): The Importance of Migration for Caribbean Development. *Global Development Studies*, Winter 1999-Spring 2000, 2(1-2): 73-105.

Conway, Dennis (1998): Misguided Directions, Mismanaged Models, or Missed Paths? Microstates in a Macroworld. and From Neoliberalism to Sustainable Development. Chapters 2, 3 and 12 in Thomas Klak (ed), *Globalization and Neoliberalism: The Caribbean Context*, (London: Rowman & Littlefield).

Robert B. Potter and Dennis Conway (1997): *Self-Help Housing, the Poor and the State in the Caribbean*. Knoxville: University of Tennessee Press & Kingston, Jamaica: The Press, University of The West Indies.

Student Theses:

Bruce Boucek, Ph.D., in progress

Todd Lindley, Ph.D., in progress

Frank Marshalek, Ph.D., in progress

Kristen Lonard-Johnston. Gentrification: A Socio-economic Construction in Indianapolis, Indiana. M.A. 2008

Benjamin Timms, Renegotiating Peasant Ecology: Responses to Relocation from Celaque National Park, Honduras, Ph.D., 2007

Benjamin Shultz, The Latino Immigrant Experience in Rural Central Kentucky, Adjustment, Employment, and Daily Life, M.A., 2007

Joseph Rodman, Return Migration to Grenada: Transnational Developments, M.A. 2005

Peter Hossler, Hungry for Peace: Integrating Resources into a More Comprehensive Understanding of the War in Mozambique, M.A., 2004

Keshav Bhattarai, Household Land Ownership and the Use of Forests in Bara District, Central Tarai Region of Nepal, Ph.D., 2001

Richard Wolfel, Mobility in Transition: Migration in the Former Soviet Union During an Era of Political and Economic Transition, Ph.D., 2001

Benjamin Timms, Linkages between Domestic Agriculture and the Hotel Sector in St. Lucia. M.A., 1999

Edward Jackiewicz, Occupational Composition, Housing Quality and Shelter Attainment during the Inaugural Period of Economic Reforms: Quito, Ecuador: 1982-90, Ph.D., 1998

Regina Ripley, A Mexican Transnational Migration Network: Social Relations in both Sending and Receiving Communities, M.A., Latin American and Caribbean Studies, 1998

Karen Spartz, Income Inequality Trends in Indiana: Adding Insult from the Rich to Injury of the Poor, and Income Inequality Trends in Indiana: Psychosocial Resignation at the Bottom of the Gap, M.A., 1998

Paul Lorah, Wilderness, Uneven Development and Demographic Change in the Rocky Mountain West, 1969-1993, Ph.D., 1996

Susan M. Walcott, Niches and Networks: Urban Regional Growth in Indianapolis: 1979-94, Ph.D., 1995

Benjamin M.I. Goss, Offshore Industrial Location: U.S. Electronics Manufacturing in the Caribbean, M.A., 1994

Thomas J. Cooke, Effect of Proximity to Job Opportunities on the Employment of Secondary Labor Market Participants in Three U.S. Metropolitan Regions, Ph.D., 1993

J. Matthew Shumway, Spatial Mobility Over the Life Course: A Longitudinal Analysis, Ph.D. 1991

Danilo Dragoni, Ph.D., 2003, Cornell, Assistant Scientist

Research Interests: Biosphere-Atmosphere Interactions, exchange of CO₂, water vapor and energy between forests and the atmosphere; Measuring and modeling spatial and temporal dynamic of plant-environment interactions, with particular focus on transpiration and photosynthesis processes

Representative Publications:

Dragoni D., H.P. Schmid, C.S.B. Grimmond, HW

Loescher. 2007: Uncertainty on annual net ecosystem

- productivity estimated using eddy-covariance flux towers. *Journal of Geophysical Research*- accepted.
- Dragoni D., A.N. Lakso, R.M. Piccioni, J.Tarara. 2006: Transpiration of grapevines in a humid climate using heat balance sap flow gauges calibrated with whole-canopy gas exchange chambers. *American Journal of Enology and Viticulture*, 57,4: 460-467
- Dragoni D., A.N. Lakso, R.M. Piccioni. 2005: Measuring Transpiration in Apple Trees using Heat Pulse Sap Flow Gauges Calibrated with Whole-Canopy Gas Exchange, *Agricultural and Forest Meteorology*, 130: 85-94.
- Tom Evans, Ph.D. 1998, North Carolina-Chapel Hill, Associate Professor, Associate Director, Center for the Study of Institutions, Population, and Environmental Change (CIPEC)**
Research Interests: Human-Environment Interactions; GIS/RS; Land Cover Change Analysis and Modeling
Representative Publications:
 Evans, T. P. and Kelley, H. 2008. Exploring Historical Dynamics of Reforestation with an Agent-Based Model for South-Central Indiana. *Geoforum*. 39(2): 819-832.
 Tucker, C. M., Randolph, J. C., Evans, T. P., Andersson, K. P., Persha, L., and Green, G. M. 2008. An Approach to Assess Relative Degradation in Dissimilar Forests: Toward a Comparative Assessment of Institutional Outcomes. *Ecology and Society*. 13(1): 4.
 Manson, S. and Evans, T. P. 2007. Agent-based modeling of deforestation in southern Yucatán, Mexico, and reforestation in the Midwest United States. *Proceedings of the National Academy of Science*. 104(52): 20678-20683.
 Evans, T. P., Sun, W. and Kelley, H. 2006. Spatially Explicit Experiments for the Exploration of Land Use Decision-Making Dynamics. *International Journal of Geographic Information Science*. 20(9): 1013-1037.
 Evans, T. P., and Kelley, H. 2004. Multi-scale analysis of a household level agent-based model of landcover change. *Journal of Environmental Management*. 72 (1-2), 57-72.
Student Theses:
 Shanon Donnelly, Ph.D., in progress
 Charles Winkle, M.S., in progress
 Wenjie Sun, A GIS-Based Integrated Approach to Explore Land-Use/Cover Change Dynamics in South-Central Indiana, Ph.D. 2006
 Shanon Donnelly, Linking Landscape Pattern to Social Process: A Multi-Scale Analysis of Farm Woodlots in Northern Indiana, M.S., 2003
- Charles E. Greer, Ph.D. 1975, Washington, Associate Professor Emeritus**
Research Interests: Tourism geography, landscape geography, China, resource management, agricultural development
Current Projects: Rice technology development in poor areas of China.
Representative Publications:
- Greer, C. and B. Stone, (1985): Agro-Ecological Zones for Wheat Production in China, *International Food Policy Research Institute*, (Washington, D.C.).
- Greer, C. (1983): *The Texas Water System: Implications for Environmental Assessment in Planning for Interbasin Water Transfers, in Long-Distance Water Transfer: A Chinese Case Study and International Experiences*, eds. A. Biswass, et al: (Dublin: Published for the United Nations by Tycooly International Publishing Ltd., and Beijing: Sciences Press, in Chinese).
- Greer, C. (1979): *Water Management in the Yellow River Basin of China*, (University of Texas Press).
- Student Theses:*
 Jillian Rickly, Ph.D., in progress
 Yamir Gonzalez, M.A., 2008
 Jillian Rickly, Spring Mill Pioneer Village: Examining Tourists' Perceptions of Authenticity and Heritage Experience in a Symbolic Tourist Landscape, M.A., 2008
 Cynthia Croissant, Uses and Landscape Patterns: A Study of Relationships Between Human Activities and Spatial Patterns of Land Use and Land Cover on Private Parcels in Monroe County, Indiana, Ph.D., 2004
 Amy Lilienfeld, Irrigator Adaptation to Groundwater Depletion in Western Kansas: 1992-1999, Ph.D., 2003
 Sean Huff, Identity and Landscape: The Reification of Place in Strasbourg, France, M.A., 2003
 Pamela Eddy, Ethnicity and the Uighurs of the People's Republic of China, M.A., East Asian Languages and Cultures, 1990
- T.H. Grubestic, Ph.D. 2001, The Ohio State University, Assistant Professor**
Research Interests: Geographic information science, critical infrastructure, telecommunications policy, transportation; technological change; crime mapping and analysis; spatial epidemiology
Representative Publications:
 Grubestic, Tony H., Matisziw, Timothy C. and Matthew A. Zook. (2008). Global Airline Networks and Nodal Regions. *GeoJournal*. (In Press)
 Grubestic, Tony H., and Elizabeth A. Mack. (2008). Spatio-Temporal Interaction of Urban Crime. *Journal of Quantitative Criminology*. (In Press)
 Grubestic, Tony H. (2008). The Spatial Distribution of Broadband Providers in the United States: 1999 - 2004. *Telecommunications Policy*. 32(3-4): 212-233.
 Grubestic, Tony H., Matisziw, Timothy C., Murray, Alan T. and Diane Snedicker. (2008). Comparative Approaches for Assessing Network Vulnerability. *International Regional Science Review*. 31(1): 88-112.
 Grubestic, Tony H. (2008). Zip Codes and Spatial Analysis: Problems and Prospects. *Socio-Economic Planning Sciences*. 42(2): 129-149.
 Matisziw, Timothy C., Grubestic, Tony H and Hu Wei. (2007). Downscaling spatial structure for the analysis of

epidemiological data. *Computers Environment and Urban Systems*. 32(1): 81-93.

Student Theses:

Elizabeth Mack, Ph.D., in progress

Daniel Knudsen, Ph.D. 1984, Indiana, Professor

Research Interests: Cultural Geography; Landscape and Tourism Geography

Current Projects: Landscape, Tourism and Meaning; Touring Denmark: Heritage Tourism and Aesthetics

Representative Publications:

D.C. Knudsen, M.M. Metro-Roland, A.K. Soper, and C.E. Greer (eds).(2008) *Landscape, Tourism and Meaning*. Aldershot, Hampshire, UK: Ashgate.

D.C. Knudsen and C.E. Greer (2008). "Heritage Tourism, Heritage Landscapes and Wilderness Preservation: The Case of National Park Thy." *Journal of Heritage Tourism* 3(1): 18-35.

D.C. Knudsen, A.K. Soper and M. Metro-Roland (2007). "Gazing, Performing and Reading: A Landscape Approach to Understanding Meaning in Tourism Theory." *Tourism Geographies* 9(3): 227-233.

Student Theses:

Brian Johnson, Ph.D., in progress

Elizabeth Vidon, Ph.D., in progress

Lei Xu, F-2 – The Experiences of Chinese 'Trailing Spouses' in the U.S., M.A., 2008

Michelle Metro-Roland, Reading Signs, Interpreting Meaning & Placing Culture in the Budapest Landscape, Ph.D., 2008

Christine Mathenge, Effects of Migrant Influx, Occupance and Land Acquisition on Changing Land Tenure Patterns in Southwest Uganda, Ph.D., 2008

Brian Johnson, Nature, Isolation, and Affordability: An Examination of Exurban Migration Motivations in Indiana, Illinois, and Texas, M.A., 2006

Anne Soper, Cultural Heritage, Identity, and Tourism in Mauritius: Moving Beyond the Tourist Gaze, Ph.D., 2006

Zhigang Tang, The Urban Housing Market in a Transitional Economy: Shanghai as a Case Study, Ph.D., 2006

Altynai Yespembetova, Tourism Development in the Republic of Kazakhstan, M.A, 2005

Nikolas Heynen, Ph.D. The Social Processes Contributing to Urban Environmental Change: Indianapolis' Inner City Urban Trees, 1962-1993, 2002

Wenjie Sun, Aspects of "Geography" in Electronic Commerce, M.A, 2002

Brent Smith, Locational, Organizational and Interorganizational Determinants of Community Development Financial Intermediary Activity, Ph.D., 2001

Nikolas Heynen, South Africa's Spatial Dialectic: A Regionalized Regulation Analysis of the South African Economy, 1970-1991, M.A., 1999.

Jason Hickman, The British Navy and the Depletion of the English Oak, M.A., 1999

Paul Torrens, An Analysis of Retail Change in Metropolis, M.A., 1998

Valerie Kier, The Arab Embargo and Israeli Trade, Ph.D., 1997

Jeffrey Boggs, A Regulationist Analysis of German Unification, M.A., 1996

Megan K. Blake, From Rust-Belt to Flex-Belt: Economic Restructuring in the Great Lakes, M.A., 1994

Aileen Buckley, Modeling Deforestation in Costa Rica Using Cellular Automata, M.A., 1993

Rebecca Lave, Ph.D. 2008, University of California, Berkeley, Assistant Professor

Research Interests: Political Ecology; Stream Restoration and Fluvial Geomorphology; Political Economy; Human-Environment Interactions

Representative Publications:

Lave, R. "Constructing Scientific Expertise Outside the Academy." In *Knowing Nature, Transforming Ecologies: Science, Power, and Practice*, edited by Mara Goldman, Paul Nadasdy and Matthew Turner. Chicago: University of Chicago Press, (in press).

Kondolf, G. M., S. Anderson, R. Lave, L. Pagano, and A. Merelender. "Two Decades of River Restoration in California: What Can We Learn?" *Restoration Ecology* 15, no. 3 (2007): 516-23.

Bernhardt, E.S., M.A. Palmer, J. D. Allan, G. Alexander, K. Barnas, S. Brooks, J. Carr, S. Clayton, C. Dahm, J. Follstad-Shah, D. Galat, S. Gloss, P. Goodwin, D. Hart, B. Hassett, R. Jenkinson, S. Katz, G. M. Kondolf, P. S. Lake, R. Lave, J. L. Meyer, T. K. O'Donnell, L. Pagano, B. Powell, and E. Sudduth. "Synthesizing U.S. River Restoration Efforts." *Science* 308 (2005): 636-37.

Palmer, M.A. , E.S. Bernhardt, J. D. Allan, P.S. Lake, G. Alexander, S. Brooks, J. Carr, S. Clayton, C. Dahm, J. Follstad-Shah, D. Galat, S. Gloss, P. Goodwin, D. Hart, B. Hassett, R. Jenkinson, G.M. Kondolf, R. Lave, J. Meyer, T.K. O'Donnell, L. Pagano, and E. Sudduth. "Standards for Ecologically Successful River Restoration." *Journal of Applied Ecology* 42, no. 2 (2005): 208-17.

John Odland, Ph.D. 1972, Ohio State, Professor

Research Interests: Local and Regional Labor Markets; Migration and the Redistribution of Population; Spatial Analysis and Quantitative Methods; Economic Geography of Health Care

Current Projects: Processes of Wage-Setting in Local Labor Markets, Changes in Local and Regional Earnings Distributions; The Geography of Households; Occupational Recruitment in Local Labor Markets; Longitudinal Analyses of Migration Behavior; Changes in the Geographic Organization of Health Care Organizations

Representative Publications:

Odland, J. and M. Ellis (2001): Changes in the Inequality of Earnings for Young Men in Metropolitan Labor Markets, 1979-1989: The Effects of Declining Wages

- and Sectoral Shifts within an Efficiency Wage Framework. *Economic Geography* 77, 148-179.
- Odland, J. and M. Ellis (2001): Inter-metropolitan Variation in the Labor Force Participation Rates of White and Black Men in the United States, *Urban Studies* 38, 2327-2348
- Odland, J. and M. Ellis (1998): Variations in the Labor Force Experience of Women across Large Metropolitan Areas in the United States, *Regional Studies*, 32, 333-347.
- Odland, J. (1998): Longitudinal Analysis of Migration and Mobility: Spatial Behavior in Explicitly Temporal Contexts, in J. Egenhofer and R.G. Golledge (eds.) *Spatial and Temporal Reasoning*, New York: Oxford University Press, 238-259.
- Odland, J. (1997): Longitudinal Approaches to Analyzing Migration Behavior in the Context of Personal Histories, in M. Fischer and A. Getis (eds.) *Recent Developments in Spatial Analysis: Spatial Statistics, Behavioural Modelling, and Computational Intelligence*, Berlin, Springer Verlag, 149-170.
- Student Theses:*
- Mark Reisinger, U.S. Internal Migration as a Response to the Economic Restructuring of Labor Markets Areas' Space- Economies: 1985-1990, Ph.D., 2001
- Mark Rockey Moore, A Distance-Based Analysis of Racialized Population Proximity to Hazardous Waste Areas: Environmental Justice and Gary, Indiana, M.A., 2000
- Xiangxing Lu, Dynamic Survival Analysis of Household Mobility and Migration in the United States, 1985-1989, Ph.D. 1996
- Byungsik Yoon, An Estimation of the Returns to Migration for Male Youth in the United States: A Longitudinal Analysis, Ph.D., 1995
- Tony Dignan, Industrial Location Behavior and Capital Grants: The Republic of Ireland, Ph.D., 1993
- Sara C. Pryor, Ph.D. 1992, East Anglia, Professor**
- Research Interests:* Atmospheric chemistry and biogeochemical cycling; Atmosphere-surface exchange of reactive gases and particles. Particle formation, dynamics and deposition processes. Numerical modeling of gas to particle conversion and pollutant transport; Physical climatology/climate change and variability; Climate downscaling. Regional manifestations of climate change and variability. Scaling issues in atmospheric science. Synoptic meteorology and climatology. Evaluation of GCM products.
- Current Projects:* Particle nucleation events in the Ohio River Valley; Development of 21st century precipitation scenarios using probabilistic downscaling techniques; Development and evaluation of downscaling techniques for near-surface wind climates; Improved models of particle dry deposition; EUCAARI: European Integrated project on Aerosol Cloud Climate and Air Quality interactions
- Representative publications:*
- Atmospheric chemistry and atmosphere-surface exchange:*
- Pryor S.C., Barthelmie R.J., Larsen S.E., Sørensen L.L., Sempreviva A.M., Grönholm T., Kulmala M., Rannik U. and Vesala T. (2008): Upward particle number fluxes over forest: Where, when, why? *Tellus in press*.
- Pryor S.C., Larsen S.E., Sorensen L.L., Barthelmie R.J. (2008): Particle fluxes above forests: Observations, methodological considerations and method comparisons. *Environmental Pollution* 152/3 667-678.
- Pryor S.C., Gallagher M., Sievering H., Larsen S., Barthelmie R.J., Birsan F., Nemitz E., Kulmala M., Rinne J., Grönholm T., Taipale R. and Vesala T. (2008): A review of measurement and modelling tools for quantifying particle atmosphere-surface exchange. *Tellus* 60B 42-75.
- Pryor S.C., Barthelmie R.J., Schoof J.T., Binkowski F.S., Delle Monache L., Stull R. (2008): Modeling the impact of sea-spray on particle concentrations in a coastal city. *Science of the Total Environment* 391 132-142.
- Pryor S.C., Larsen S.E., Sørensen L.L., Barthelmie R.J., Grönholm T., Kulmala M., Launiainen S., Rannik ?. and Vesala T. (2007): Particle fluxes over forests: Analyses of flux methods and functional dependencies. *Journal of Geophysical Research - Atmospheres* 112 D07205 doi:10.1029/2006JD008066.
- Pryor S.C., Spaulding A.M. and Rauwolf, H.M. (2007): Evolution of the concentration of inorganic ions during the initial stages of precipitation events. *Water, Air and Soil Pollution* 180 3-10.
- Pryor S.C. (2006): Size resolved particle deposition velocities of sub-100 nm diameter particles over a forest. *Atmospheric Environment* 40 6192-6200
- Climate change and variability (Regional Climate change):*
- Schoof J.T. and Pryor S.C. (2008): On the proper order of Markov chain model for daily precipitation occurrence in the contiguous United States. *Journal of Applied Meteorology and Climatology* in press
- Pryor S.C., Howe J.A. and Kunkel K.E. (2008): How spatially coherent and statistically robust are temporal changes in extreme precipitation across the contiguous USA. *International Journal of Climatology* in press.
- Schoof J.T., Pryor S.C. and Robeson S.M. (2007): Downscaling daily maximum and minimum temperature in the Midwestern USA: A hybrid empirical approach. *International Journal of Climatology* 27 439-454.
- Pryor S.C., Schoof J.T. and Barthelmie R.J. (2006): Winds of change? Projections of near-surface winds under climate change scenarios. *Geophysical Research Letters* 33 L11702 10.1029/2006GL026000.
- Schoof J.T. and Pryor S.C. (2006): An evaluation of two GCMs: Simulation of North American teleconnection indices and synoptic phenomena. *International Journal of Climatology* 26
- Pryor S.C., Schoof J.T. and Barthelmie R.J. (2005): Climate change impacts on wind speeds and wind energy density in northern Europe: empirical downscaling of multiple AOGCMs. *Climate Research* 29 183-198

- Pryor S.C., Barthelmie R.J. and Kjellstrom E. (2005): Analyses of the potential climate change impact on wind energy resources in northern Europe using output from a Regional Climate Model. *Climate Dynamics* **25** 815-835.
- Pryor S.C., Schoof J.T. and Barthelmie R.J. (2005): Empirical downscaling of wind speed probability distributions. *Journal of Geophysical Research-Atmosphere* **110** D19109 doi: 10.1029/2005JD005899.
- Student Theses:**
- Fredi Birsan, Ph.D., in progress
- Duick Young, Ph.D., in progress
- Andrea Spaulding, M.S., in progress
- Jessica Howe, Analysis of Extreme Precipitation Across the Midwest During the Twentieth Century, M.S., 2008
- Fredi Birsan, Particle Dry Deposition to a Forest Canopy: A Flux Based Analytical Model, M.S., 2005
- Justin Schoof, Generation of Regional Climate Change Scenarios Using General Circulation Models and Empirical Downscaling, Ph.D., 2004
- Nathan Polderman, Linking Synoptic Climate to Historical Lake Level Variability in the Lake Michigan-Huron Basin, M.S., 2003
- Sean Potter, Characterizing air quality in Indianapolis, Indiana, M.S., 2000.
- Brooks Pearson, An Estimation of Potential Production of Agri-Based Ethanol and its Contribution to Emissions from Transportation, Ph.D., 1999. *1st prize for a Dissertation in Transportation Geography, American Association of Geographers.*
- Justin Schoof, Synoptic circulation classification and downscaling for the Midwestern United States. M.S. 1999. *Awarded the Esther L. Kinsley thesis award, Indiana University for best Masters thesis.*
- A. Faiz Rahman, Ph.D., 1996, Arizona, Associate Professor**
- Research Interests:** Large-Area Carbon Cycles; Remote Sensing Modeling of Ecosystem Fluxes; Geo-Informatics (collection, transfer, processing and visualization of spatial data)
- Current Projects:** NASA: North American Carbon Program; DOE: Carbon Cycle Science; USDA: Crop Management with Hyperspectral Remote Sensing; NSF: Spectral Network for Ecosystem Studies
- Representative Publications:**
- Rahman A. F., and Cordova, V. D., (2007), A continuous-field remote sensing method for estimating net primary production of a deciduous forest, *International Journal of GeoInformatics*, 3(2):41-51.
- Gamon, J. A., Rahman, A. F., Dungan, J., Schildhauer, M., and Huemmrich, K. (2006), Spectral Network (SpecNet) – What is it and why do we need it?, *Remote Sensing of Environment*, 103: 227-235.
- Rahman, A. F., Sims, D. A., Cordova, V. A., and El-Masri, B. Z., (2005), Potential of MODIS EVI and surface temperature for directly estimating per-pixel ecosystem C fluxes, *Geophysical Research Letters*, 32, L19404, doi:10.1029/2005GL024127.
- Rahman A. F., Cordova, V. D., Gamon, J. A., Schmid, H. P., and Sims, D. A. (2004), Potential of MODIS ocean bands for estimating CO₂ flux from terrestrial vegetation, *Geophysical Research Letters*, 31, L10503, doi:10.1029/2004GL019778 .
- Rahman A. F., Gamon, J. A., Sims, D. A., and Schmidt, M. (2003), Optimum pixel size for hyperspectral studies of ecosystem function in southern California chaparral and grassland, *Remote Sensing of Environment*, 84:192-207.
- Student Theses:**
- Bassil El-Masri, Ph.D., in progress
- Scott M. Robeson, Ph.D. 1992, Delaware, Professor and Chair**
- Research Interests:** Climatic change; statistical climatology; Applied Climatology.
- Current Projects:** Detecting changes in daily air-temperature probability distributions; Influence of surface climate network distributions on estimates of global change; Growing-season length as an indicator of climatic change; Use of point-based semivariance models to monitor environmental disturbances; Development and application of geographic box plots
- Representative Publications:**
- Willmott, C. J., S. M. Robeson, and K. Matsuura (2007) "Geographic box plots", *Physical Geography*, 28, 331-344.
- Schoof, J. T., S. C. Pryor, and S. M. Robeson (2007) "Downscaling daily maximum and minimum temperature in the Midwestern USA: A hybrid empirical approach", *International Journal of Climatology*, 27, 439-454.
- Robeson, S. M. and L. A. Ensor (2006) "Daily precipitation grids for South America (Comment)", *Bulletin of the American Meteorological Society*, 87, 1095-1096.
- Robeson, S. M. and J. A. Doty (2005) "Identifying rogue air-temperature stations using cluster analysis of percentile trends," *Journal of Climate*, 18, 1275-1287.
- Robeson, S. M. (2005) "Statistical climatology," pp. 687-694 in J. E. Oliver (ed.) *Encyclopedia of World Climatology*. Springer, New York.
- Janis, M. J. and S. M. Robeson (2004) "Determining the spatial representativeness of air-temperature records using variogram-nugget time series," *Physical Geography*, 25, 513-530.
- Robeson, S. M. (2004) "Trends in time-varying percentiles of daily minimum and maximum temperature over North America," *Geophysical Research Letters*, 31, L04203, doi:10.1029/2003GL019019.
- Schoof, J. T. and S. M. Robeson (2003) "Seasonal and spatial variations of serial and cross-correlation matrices used by stochastic weather generators," *Climate Research*, 24, 95-102.
- Robeson, S. (2002) "Relationships between mean and standard deviation of air temperature: Implications for global warming," *Climate Research*, 22, 205-213.

Robeson, S. M. (2002) "Increasing growing-season length in Illinois during the 20th century," *Climatic Change*, 52, 219-238.

Student Theses:

Melissa Davis, M.S., in progress

Jared Desrochers, M.S., in progress

James Hayes, The Effects of Landscape Pattern on Ecological Process: Examining a Ponderosa Pine Wildfire Using Discrete and Continuous Landscape Approaches, Ph.D., 2008

Noriyuki Sato, Impacts of Climatic Change and Variability on Winter-Road Maintenance in North America, Ph.D., 2008

Leslie Ensor, Statistical Differences in Gridded and Point Precipitation Datasets in the Midwestern United States, M.S., 2005

Jeff Doty, Radiant Land-Surface Temperature of a Deciduous Forest: The Effectiveness of Satellite Measurement and Tower-Based Validation, M.S., 2003.

Julie Hanson, Understanding Deforestation Processes in Northwestern Yucatan, Mexico Through Geographical Information System Analysis of Satellite Imagery, M.A., 2001

Michael Janis, Confounding Climatic Change: The Problem of Spatially Unrepresentative Air-Temperature Records, Ph.D., 2000

Kelley Hook, Time Series Models for Generating Climatic Change Scenarios of Wind Energy Variability, M.A., 1998

Karsten Shein, Wind Speed Variability in the Midwestern United States 1961-1990: Implications for Wind Power Assessment, M.A., 1995

Rinku Roy Chowdhury, Ph.D., 2003, Clark, Assistant Professor

Research Interests: Land Change Science; Human Dimensions of Global Environmental Change; Cultural and Political Ecology; GIS/RS; Landscape and Conservation Ecology

Representative Publications

Roy Chowdhury, R. 2007. Household Land Management and Biodiversity: Secondary Succession in a Forest-Agriculture Mosaic in Southern Mexico. *Ecology and Society* 12 (2): 31. [online]

Roy Chowdhury, R. 2006. Driving forces of tropical deforestation: The role of remote sensing and spatial models. *Singapore Journal of Tropical Geography* 27(1): 82-101.

Roy Chowdhury, R. 2006. Landscape change in the Calakmul Biosphere Reserve, Mexico: Modeling the driving forces of smallholder deforestation in land parcels. *Applied Geography* 26(2): 129-152.

Roy Chowdhury, R. and B. L. Turner II. 2006. Reconciling agency and structure in empirical analysis: Smallholder land use in the southern Yucatán, Mexico. *Annals of the Association of American Geographers* 96(2): 302-322.

Keys, E. and R. Roy Chowdhury. 2006. Cash crops, smallholder decision making and institutional

interactions in a closing frontier, Calakmul, Campeche, Mexico. *Journal of Latin American Geography* 5(2): 75-90.

Fuller, D.O and R. Roy Chowdhury. 2006. Monitoring and modelling tropical deforestation: Introduction to the special issue. *Singapore Journal of Tropical Geography* 27(1): 1-3.

Roman Zlotin, Ph.D. 1970, Russian Academy of Sciences, Moscow, USSR, Senior Lecturer

Research Interests: Animal, plant, ecosystem and soil geography; Structure, function and dynamics of terrestrial biodiversity; Plant-animal interactions. Global and regional patterns of organic matter production and decomposition; Human-induced degradation of environment; Biodiversity and public health.

Current projects: Spatial scaling in dynamics of primary production in woodland ecosystems of the Southwest; Environmental causes of cycles of fruit production in savannas of the Southwest; Understanding the role of UV-B radiation in degradation of organic matter in arid ecosystems

Representative Publications

Zlotin R.I. (2006): Patterns of distribution of the mortality and mast production in woodland ecosystems of central New Mexico (Sevilleta LTER). Submitted to the Journal of Arid Environments.

Zlotin R.I. (2002): Biodiversity and productivity of ecosystems. In: Shagedanova M.(ed.). *Physical Geography of Northern Eurasia*. Cambridge University Press.

Zlotin R.I. (1997): Geography and organization of high mountain ecosystems in the former USSR. In: Wielgolaski F.E.(ed.). *Ecosystems of the World 3. Polar and Alpine Tundra*. Elsevier Publ. 133-159.

Feshbach M, and Zlotin R.I. (1995): Environmental catastrophe in the former Soviet Union. *Environ. Review*. 2, 9:1-8.

Goryachkin S.V., Zlotin R.I., and Tertitsky G.M. (1994): Diversity of natural ecosystems in the Russian Arctic. *Reprocentralen Publ.*, Lund University.

Adjunct Faculty

Bennet Brabson, Ph.D., 1966, Massachusetts Institute of Technology, Professor of Physics

Research Interests: Statistical analyses of extreme wind speeds. The statistical strategies used fall under the rubric of Extreme Value Theory and include such distributions as Generalized Extreme Value and Generalized Pareto Distributions.

Timothy S. Brothers, Ph.D. 1985, UCLA, Associate Professor of Geography IUPUI

Research Interests: Human alteration of vegetation and environment, spread of alien plants

Kelly Caylor, Ph.D. 2003, Virginia, Assistant Professor
Research Interests: Ecohydrology (i.e. interface between plant ecology and surface hydrology); Landscape ecology; Surface hydrology; Ecological modeling; Theoretical and spatial ecology

Jeffrey S. Wilson, Ph.D., Indiana State, 1998, Associate Professor of Geography IUPUI
Research Interests: Remote sensing and Geographic Information Science

Owen Dwyer, Ph.D. 2000, Kentucky, Assistant Professor of Geography IUPUI
Research Interests: urban geography, American social movements, Civil Rights movements and the museums and memorial landscapes that commemorate it, geographic education

C. Susan B. Grimmond, Ph.D. 1989, British Columbia, Professor
Research Interests: Micrometeorology and hydroclimatology of urban and forested areas; measurement and physically based modeling.

David B. MacKay, Ph.D. 1971, Northwestern, Professor of Marketing
Research Interests: Decision making; cognitive mapping; retail geography; quantitative methods.

Emilio Moran, Ph.D., 1975, University of Florida, Rudy Professor of Anthropology, Professor – SPEA Co-Director, Center for the Study of Institutions, Population and Environmental Change (CIPEC) Director, ACT: Anthropological Center for Training and Research on Global Environmental Change
Research Interests: Tropical ecosystem ecology, Amazon Basin, Secondary successional forests, Human ecology

Hans Peter Schmid, Ph.D. 1988, British Columbia, Professor
Research Interests: Boundary layer development over inhomogeneous surfaces; Surface-atmosphere exchange over inhomogeneous surfaces (observation and modeling); Spatial aggregation modeling of turbulent fluxes, modeling of subgridscale variability in terms of surface texture; Source area / footprint modeling for turbulent flux observations over complex surfaces; Experimental design and measurement of turbulent surface-atmosphere exchange processes; Development of objective methods to scale-up from footprint to ecosystem fluxes.

Philip Stevens, Ph.D., 1990, Chemistry, Harvard University, Assistant Professor of Public and Environmental Affairs
Research Interests: Characterization of the chemical mechanisms in the atmosphere that influence regional air quality and global climate change. An accurate understanding of this chemistry is essential to assess, control and predict the impact of anthropogenic perturbations on the chemical and radiative properties of the atmosphere.