In next 20 years, program looks to expand collaboration, opportunities

At the 20-year celebration of the relationship between the University of Missouri and the University of the Western Cape (UWC) in 2006, we began discussing ways to expand the collaborative activities between our two universities. Part of that conversation focused on the extent to which technology could aid our collaborative efforts. Given the importance that each institution places on internationalizing its school, it is not surprising that there are people at both UM and UWC who see considerable value in using

Franz report highlights distance learning initiative

The following excerpt from Prof. JM Frantz’ report documents the visit that she and Prof. Patricia Struthers made to the Columbia campus this past year.

It highlights the pioneering work of the faculty of UWC’s Dept. of Physiotherapy and MU’s Dept. of Physical Therapy who are using exchange visits to develop new courses and programs utilizing distance learning.

The exchange for the faculty/staff between the University of the Western Cape (UWC) and the University of Missouri (MU) is of great value both

FRANZ REPORT ON UWC-MU EXCHANGE
APRIL 27 - MAY 31, 2008

personally and academically. The purpose of this visit was to determine the feasibility of the development of a course work interdisciplinary PhD at both institutions.

ACADEMIC DEVELOPMENT
Currently both the department of physiotherapy at UWC and the SHP at MU is in the process of investigating and developing the possible curriculm content that would be applicable for both institutions as well as the areas that could jointly be engaged in. Following discussions during this visit with the team leader investigating the PhD programme at MU, Dr K Hagglund, it was decided that we could work together on this process.

The following tasks needed to be done at UWC to facilitate the process:

1. Identifying a small task team at UWC to push the process and it was suggested that Prof Frantz and Struthers form

See PROGRAM next page...
distance learning as a vehicle for promoting internationalization.

Consequently, over the course of 2008, Professor Uphoff and Professor Jan Persens have had discussions with the UMSAEP Committee, with UWC’s SIR Committee and with many others at each school exploring how UM might significantly expand its partnership with UWC by means of distance learning. These discussions included a video conference involving leaders from both schools. Unquestionably, we generally agree it would be desirable to offer students at both schools a broader perspective by enabling them to interact with and learn from students and faculty at the other institution. There are, of course, a variety of formats and alternative models to be used to enhance learning opportunities for our respective students. Examples include: allowing students at one school to enroll in online courses at the other, integrating a live lecture via video conference by a professor at one school into an existing course at the other, offering a course taught by a professor from each school for credit to students from both schools. Undoubtedly, both schools benefit enormously if students from each school have broad access to a range of courses that give students a U.S. or South African perspective that they otherwise not experience. Although the UMSAEP Committee and many others at both UWC and UM share this vision, it is uncertain how far or how fast we can or should go in implementing such a vision. That answer is particularly unclear in light of the enormous financial challenge now facing UM. And yet, in light of the budget constraints we face and are likely to face for the foreseeable future, there is all the more reason to vigorously explore distance learning as a cost effective vehicle to continue the important mission of opening the world to our students.

Based on prior collaborations, Professors Persens and Professor Uphoff have identified some professors and departments at each university who have expressed interest in exploring the possibility of using video conferencing to add an international perspective to an existing course or to a new course. We have encouraged them to consider the following opportunities for collaborative distance learning:

1) A UM or UWC professor uses a professor from the other school to give a video conference lecture to his/her own students

2) A UM or UWC professor adds a video conference class or two including a professor and/or students from the other school, thereby adding an international component to an existing course

3) A UM or UWC professor teaches an existing course for the other school via video conferencing. The professor is essentially like an adjunct professor and is paid a stipend by the host school. Alternatively, a UM or UWC department might agree to assign one of its professors to teach a course for the other school in exchange for the other school having one of its professors teach a course for that department. Using this approach, the professor would not receive any additional stipend, but perhaps be relieved of some other teaching assignment.

4) A UM or UWC professor teaches an existing course at his or her home school, but allows a limited number of students from the other school to enroll. Under this approach, students would enroll at their own school and pay tuition to that school.

This requires, of course, that the course also be approved for credit at the other school. (This may be a harder hurdle for UWC than for UM, given the structure of their school.)

5) Two or more professors from different schools jointly teach students from both schools. The course must be approved at each school. It may be easiest to select a course that is already approved and modify it (name changed/length of course, etc.) so that the course works for both schools. Students then enroll for credit at their own school (amount of credit and grading done by each professor of students at that school) and pay tuition to the home school.

Our hope is that by encouraging some of the professors and departments most committed to the UM/UWC relationship to experiment with distance education courses that we will, in fact, learn that some professors can use video conferencing with relative ease to greatly enhance the learning experiences of their students. If that is true, we can also use these pilot courses to identify logistical hurdles and to assess the viability of expanding distance learning opportunities for even more students at both schools. We can then tackle the question of how to encourage other professors and departments to take advantage of this technology. Additionally, we can then confront the larger question of how we can best utilize other distance learning models to enrich the students from both schools.

Ultimately, we remain confident that by exposing our students to perspectives they would otherwise not encounter, we will enhance their educational experience and strengthen this marvelous relationship.

Internet resources on South Africa

- African Internet Connectivity: http://www3.sn.apc.org/africa
- The South Africa Initiative Office (U. of Michigan): http://www.umich.edu/~saioum
- Independent Online News: http://www.iol.co.za/
- UMSAEP: http://www.umsystem.edu/ums/departments/aa/southafrica/
- The University of the Western Cape: http://www.uwc.ac.za
part of this committee.
2. A feasibility study needs to be done at UWC to investigate the need for an interdisciplinary course work PhD in the economy, among students and the university staff/faculty.
3. Include more departments as key stakeholders
4. The PhD programme could operate as one of the core courses of the Faculty of Community and Health Sciences
5. A proposal to be submitted to the FCHS for discussion and approval and later the UWC.

The continuous link between UWC and MU for this project would include:
1. Joint development of core courses that would be of interest to both institutions
2. Joint development of elective courses that could be discipline specific
3. Identify key research interests in order to jointly apply for funding that would allow for PhD scholarships and student exchanges between the 2 institutions

Example
A possible example of the curriculum would be:
Degree: Doctor of Philosophy in health and rehabilitation sciences
Entrance requirement: A masters degree in a related field
Length: 4 years minimum

Health and Rehabilitation Sciences Core Curriculum (Year 1)
Rehabilitation Theories
Theories of health promotion and disease prevention
Rehabilitation services in health care systems (AFRICA vs USA)

Health and Rehabilitation Sciences Electives (Year 1)
Pathophysiology and Impairment
Functional Limitations and Participation
Health Services
Research Core (Year 2)
Research design and statistics
Research ethics
Techniques for effective grant writing

Writing for publication
Proposal writing

Dissertation in Health and Rehabilitation Sciences (Year 3 and 4)

Future
This exchange has also lead to the development of a joint proposal between the departments of physiotherapy at UWC and MU. This proposal has been submitted to the Dean of SHP at MU and will be submitted to the Dean of FCHS at UWC. The aims and objectives of the proposal is described below.

UWC-MU Collaboration Project: Internationalization of core physiotherapy curriculum between the University of the Western Cape and Missouri University
Purpose: To design, implement and evaluate a core curriculum in physiotherapy education that fosters global competencies cross culturally in both UWC, South Africa and UM, USA faculty and students.

Goals/Objectives: Education and curriculum development
1) To develop appropriate culturally sensitive problem based learning cases around the core curriculum in physiotherapy.
2) To develop web based assignments relating to pathology, assessment an intervention of common conditions in both countries to encourage communication and discussion between MU and UWC students.
3) To develop and evidence based practice model/approach at UWC guided by current practice at MU

Student development
1) To explore mechanisms to formalise didactic and clinical education between MU and UWC through clinical exchanges
2) To explore collaboration and curriculum interaction through e-learning

Staff/Faculty development
1) To encourage staff development as it relates to web site development and research
2) To encourage mentorship programmes for faculty with regards to research, e-learning and grant writing
3) To encourage the development of PhD faculty and PhD co-supervision of students
4) To collaborate on joint grant writing proposals
5) To assist staff/faculty in taking an idea and write it into a grant

To read Dr. Frantz’s full report, go to (http://umsystem.edu/ums/departments/aa/southafrica/pgmlinkage/).
International component added to Missouri S&T Geologic Field Camp

Introduction
Dr. Laudon, working with the University of Missouri System South African Exchange program, undertook several important initiatives towards increasing the international component to the Missouri S&T Geologic Field Camp that made the participation of five students from the University of the Western Cape in the Missouri S&T Geologic Field Camp in 2008 possible.

They include:
1) In 2002, with support from the University of Missouri System South African Exchange program and the UMR Geologic Field Camp, Dr. Reggie Domoney from the University of the Western Cape participated as a lecturer in teaching both courses of the UMR Geologic Field Camp (at that time based in Cedar City, Utah). During this time multiple, almost daily, discussions among Drs. Laudon, Domoney, and Hogan regarding the possibility of holding joint Geologic Field Camp experiences involving students from both schools ensued. Dr. Jan Van Bever-Donker (using other sources of funding) also visited the field camp for a week and voiced support for such an exchange.

2) In 2004 Dr. Laudon initiated the first joint Geologic Field Camp experience for UMR students and students of the University of the Western Camp in South Africa. This joint venture was supported by monies from the University of Missouri System South African Exchange program, which provided $10,000 to defray the cost for UMR students to attend the camp, and monies from the UMR Geologic Field Camp funds which were used to support instructors and other costs.

3) In 2007 discussions among Drs. Uphoff, Laudon, and Hogan investigated the possibility of bringing students from the University of the Western Cape to the United States to attend the Missouri S&T Geologic Field Camp. The University of Missouri South African Exchange program provided the initial monetary support of $20,000 for five students from the University of the Western Cape to attend the entire field camp (six college credits). This initial funding was critical to attracting additional monetary support from the Chevron Development Board to further support this exchange and the field camp. Monies from Chevron helped to cover additional expenses the University of the Western Cape students would incur during the camp (e.g., food, hotel costs, etc.).

Take that ridge! The 2008 Missouri S&T Geology Field Camp

Continued on next page...
The Missouri S&T Geology Field Camp provided partial support for Dr. Domoney (food, lodging, transportation, and miscellaneous items).

The long term view of both the University of Missouri South African Exchange program and the Geology and Geophysics faculty of Missouri S&T and the University of the Western Cape were critical to establishing an international component to the Geologic Field Camp.

The support from private industry, such as Chevron, will become increasingly more to achieving the goal of self sustainability for the Missouri S&T Geologic Field Camp.

The 2008 Missouri University of Science and Technology Geologic Field Camp

The emergence from the Missouri S&T Stonehenge parking lot of a caravan of five vans, filled with 36 geology and geophysics students – including five undergraduate students and their professor Dr. Reggie Domoney from the University of the Western Cape, South Africa marked the beginning of a new era for the Missouri S&T Geologic Field Camp.

For the first time freshmen and sophomore geology majors attended the first half of the geologic field camp (three credits) rather than taking both courses simultaneously near the end of their academic career. These students will attend the advanced geologic field methods course (also three credits) either in 2009 or, depending upon their graduation date, in 2011.

For the second time students incorporated new technologies and highly quantitative methods in several of their projects to construct accurate and precise balanced geologic cross-sections of folded and faulted terranes. For the third time in its history the Missouri S&T Geologic Field Camp had an important and prominent international component.

Once again North American students and African students worked closely together, under challenging conditions, to successfully solve complex problems (similar to problems that may be faced while working as professional geologists and geophysicists for an international mining or petroleum company).

This time, with support from the University of Missouri South African Exchange program and the Chevron Development Board five students from the University of the Western Cape traveled to the United States to attend the Missouri S&T Geologic Field Camp.

Based upon the tremendous cooperative learning and increase in cultural awareness observed by the faculty this field camp was a tremendous success. It is clear that the international and quantitative components of the field camp are an essential part of the training necessary to keep graduates of Missouri S&T Geology and Geophysics program highly competitive in an increasingly global marketplace.

Rationale for Two Independent Field Camp Experiences

From 2008 forward the introductory and advanced geologic field methods courses will be offered on alternating years immediately at the end of the spring semester.

The most important reason for making the change is that one of the greatest obstacles to student success in geology and geophysics courses is the ability to develop a sense of scale and visualize (within their minds) solutions to three dimensional spatial problems (e.g., in a faulted plunging fold where does the missing section go?).

Similar to immersion methods for learning a foreign language, field camp is an immersion method for developing these skills early on in their academic careers - students are surrounded by geology in the field and must wrestle with scale and spatial relationships as they construct their own geologic maps and cross-sections first hand.

Developing these skills earlier in their academic careers allows them to reinforce these skills again and again on the many field trips they take as well as when they take the advanced field methods...
course.

Secondly, Missouri S&T Geology and Geophysics majors will now be better prepared (and more competitive) to pursue summer internships earlier in their academic careers. In addition, because these courses will finish in early June (rather than in the middle of the summer) students will be available to accept summer internships or more easily pursue other opportunities during the summer break (e.g., classes, jobs).

Thirdly, two shorter duration field camp experiences have the effect of increasing the overall teaching effectiveness by reducing the potential for student “burn-out”. Even our best and most enthusiastic students appear to go numb after three weeks in the field for a variety of reasons – including too much new information. At this point they slip out of the “learning mode” and into “survival mode”.

The shorter duration field camp experiences minimize the potential for burnout and thus maximizing the return on the resources being used to enhance student understanding and appreciation for the Geological Sciences.

Finally, this approach reduces costs from running an approximately six week program every year to running an approximately three week program every year without any negative impact on the actual physical amount of time of instruction students receive in the field as part of their degree requirements.

The initial results of these changes appear to be having a very positive impact on the freshman and sophomore students that participated in the first three credit course or the “introductory” field methods course.

The desire of the freshman and sophomore students to get out there and experience for themselves “geology” first hand was evident in the enthusiasm with which they attacked their mapping projects – despite extreme weather conditions. And as the intro course was winding down Dr. Hogan asked several of the students what their plans were upon returning to Rolla. Tom Herbst said that he was going home to produce a geologic map of his grandfather’s farm! He’s hooked. Airin Price (now a sophomore) returned to Rolla and secured a summer internship with the Doe Run Corporation.

She left for the western US to work as an assistant preparing a geologic map of one of the companies’ new mining prospects. The changes appear to be having the desired results for our freshman and sophomore students.

**Impact of the International Exchange**

The success of the international component to field camp is largely due to the students’ natural abilities and willingness to work, and of course strong encouragement from Professors Mohamed Abdelsalam and John Hogan of Missouri S&T and Reggie Domoney (University of the Western Cape, South Africa; UWC), and returning as one of the all stars from last year’s field camp, Jason Kaiser, as the graduate teaching assistant.

The five honor students from UWC that participated in both the introductory and the advanced field methods course for the 2008 field camp included Andy Arnold, Zainab Mowzer, Emmanuel Neormi, Nishele Pasha, and Stephane Tsakou.

**Academics** – The Missouri S&T Geologic field Camp pursues a rigorous schedule to maximize students exposure to the various aspects of the Geological Sciences with applications to current challenges in energy and resources, environment, and scientific research of earth and planetary processes. This is accomplished through a combination of geologic mapping projects in various environments including folded and faulted sedimentary and igneous rocks, complexly deformed metamorphic rocks, as well as field trips to classic geologic localities of the western US (e.g., The Grand Canyon).

In addition to completing the rigor of the field camp assignments, the African students faced the additional challenge of taking their entire end of the year written examinations (the results which determine their final standing in their courses) at the same time! These exams were administered by Professor Domoney.

Allowances were made to permit the UWC students to remain out of the field in order to prepare and take some of these exams. However, during one camping trip Dr. Hogan found several of the UWC guys huddled in the bathroom taking advantage of the electrical outlets to power

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**CONTINUED FROM PREVIOUS PAGE**

Lively discussions at a typical lunch spot, Cedar City, Utah.

Learning to visualizing complex structures in person, in the field.

Continued on next page...
their laptops so they could study for one of these exams. Their dedication clearly earned the respect and admiration of the Missouri S&T students. Even though the workload on the UWC students was extraordinarily heavy we never heard a lot of complaints (although Reggie did showcase his diplomacy skills once or twice).!

In the end, two of the UWC students earned an A, and the other three B’s for the introductory field methods course (North American students 19 A’s, 11 B’s) and all five UWC students earned a grade of B for the advanced field methods course (North American students 3 A’s, 4 B’s, and 3 C’s).

A suggestion for future exchanges would be to allow the UWC students to take their exams prior to attending the field camp thus enabling them to focus on what really is a life changing experience – visiting and working in a foreign country with foreign students.

The dedication, work ethic, and ability to perform under the tough conditions presented at field camp will serve the UWC students well when they face challenging situations working in industry.

Cultural Impacts - As expected, field camp began with a climate of “cautious” respect of cultural differences.

After allowing for a period of settling in and adjustment, the African students were dispersed among groups of North American students to work on geologic field mapping exercises. From this point forward any hesitancy rapidly faded and was replaced by a sharing of experiences. New friendships among the North American and the five African students solidified over lunch in the field, preparing maps and reports at night, or travelling many miles along back roads and highways in close quarters as “Vandroids”. And in the end a blending of cultures was becoming evident to watch the sequential stages (including Andy and Pasha seeking shelter from the storm... “with the ladies”.)

The dedication, work ethic, and ability to perform under the tough conditions presented at field camp will serve the UWC students well when they face challenging situations working in industry.

Integration of Technology in Field Mapping

We are also making other important changes to field camp as well. Many of them center on utilizing more technology to capture geologic data in the field (e.g., hand held GPS units, geospatially registered digital photogrammetry) without compromising teaching essential skills needed for constructing geologic maps. Introduction of new quantitative mapping techniques will again serve to make Missouri S&T Geology and Geophysics students better prepared and therefore more competitive upon graduation to enter the global workforce.

The mining and petroleum industries recognize the tremendous importance of having a workforce of geologists and geophysicists with the ability to visualize solutions to three-dimensional spatial problems. Geology “Field Camps” are one of the most important instruments by which we can help our students develop these skills. It was extremely rewarding to watch the sequential stages (including a little frustration on the part of both the American and African students) of development of quantitative balanced cross-sections of a basement cored fault.

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propagation fold. The initial data was collected in the field using highly precise and accurate locations determined by GPS units, collection of structural orientation data of tilted strata and faults, as well as using a traditional base map. Instruction in the technique utilized new projection equipment, lap tops, and software purchased using funds provided by the Chevron Development Board. Upon seeing the final cross-section one of the students exclaimed “It’s huge!” Now that’s developing an appreciation for scale even before their first course in Structural Geology! It would also have been a simple step for any one of these students to calculate exactly how deep Petroleum Engineers would need to drill, which rock formations would be penetrated, when and how many faults would be encountered, on the way to intercepting any potential trapped hydrocarbons. Clearly our students are gaining an early appreciation for the need to collect highly accurate and precise location and structural data in the field (which they did) for the construction of balanced cross-sections (which they did) that will be used to derive data needed for such calculations. Geology and Geophysics is a highly quantitative science – our students proved this to themselves early in their academic careers during their first geologic field methods course. We will be continuing to build upon the digital component of field camp adding to the hardware and software provided by the initial support from Chevron.

Having the UWC students come to the USA completed the first cycle in what we hope will lead to many more exchanges between the two geology field camp programs. More importantly we hope that the friendships and bonds they formed with the Missouri S&T students will continue well into the future. Many of our geologists and geophysicists have plans to join the global workforce upon graduation either in mining or petroleum industries. As the field camp was drawing to a close a common exchange we heard between the UWC and Missouri S&T students was the hope that they might end up working together for the same company in the Petroleum or Mining Industry. Even if this is not the case, students from UWC and Missouri S&T have developed a strong enough appreciation for other cultures that many of these students now welcome the opportunity to travel and work in Africa. Changing a young person perceptions of the world could possibly be one of the best future outcomes of the 2008 field camp – an outcome that began with the foresight and funding by the University of Missouri System South African Exchange program, and support from industry leaders such as Chevron.
In 2008, as in previous years, UM and UWC faculty members participated in many productive exchanges. The following two examples highlight the diversity and richness of both the UM/UWC linkage exchanges and the South African Partnerships Program awards:

**Dr. Jane Armer**, Director, Nursing Research, Ellis Fischel Cancer Center and Co-Director, Health Communication Research Center at the University of Missouri-Columbia and **Dr. Cheryl Nicodem** of UWC's Nursing School received a UM/UWC linkage grant that led to the development and implementation of the first 135-hour lymphedema management (LE) class in South Africa (and the continent of Africa).

The course was a tremendous success with 21 highly motivated and dedicated participants composed of health professionals from the public and private sector - independent practitioners as well as those working in governmental and nongovernmental agencies. Drs. Armer and Nicodem designed the course to meet international standards as recognized by the certification board of the Lymphology Association of North America (LANA). The primary goal of the course is to improve outcomes-based care for patients with lymphedema and those at risk for lymphedema.

With CANSA support and a professional videographer, Drs. Armer and Nikodem also produced an insightful case study DVD from a patient case they presented to the LE class. The patient was a breast cancer survivor of 5 years who had not previously received lymphedema therapy. The documentation of the results of one day of intensive treatment (MLD and compression bandaging) represents a powerful educational tool that they anticipate will be put to very good use.

For a look at Dr. Armer and Nicodem's complete report and other reports from those who traveled on the UM/UWC linkage program, go to (http://umsystem.edu/ums/departments/aa/southafrica/pgmlinkage/).

**Dr. Rob Paul**, a professor in the Psychology Department at UMSL, received a SA Partnerships Program award to conduct a pilot study in South Africa on cognitive aspects of HIV. Dr. Paul worked with a team of scientists from the University of Cape Town and the University of Stellenbosch and his investigative team included experts in international studies of cognition in HIV (Drs. Paul, Clifford, Valcour), psychiatric disorders (Drs. Stein, Seedat), neuroimaging (Drs. Laidlaw, Meintjes), laboratory measures of HIV (Drs. Engelbrecht and Shiramizu) and statistics (Dr. Woods). In addition, Dr. Jennifer Manly served as a consultant to the team to optimize cross-cultural application of their work. Dr. Paul and his team used this pilot study to apply for a NIH grant to conduct a major study as described more fully below. This multidisciplinary team is critical for the proposed study given the number of factors that complicate this area of study and the importance of developing a model of central nervous system injury. Each core component of the grant (e.g., neuropsychology, neuroimaging, laboratory markers) is directed by individuals with current external funding in their respective area of focus, and the team as a whole is very well published with years of experience conducting funded international HIV work.

Members of the team are also involved in the International Consortium of NeuroAIDS scientists (established in 2007 by UCSD). Dr. Paul is confident that if he and his team are able to secure NIH funding that the results of their study will lead to important published work.

The following excerpt from Dr. Paul’s NIH grant describes the goals of their study:

**A. SPECIFIC AIMS**

The purpose of the present study is to determine the impact of clade C HIV on cognitive function and neuroimaging indices, and to identify the biomarkers associated with cognitive status in this population. Nearly all studies of cognitive function in HIV have been conducted in North America where clade B represents the common genetic strain of the virus. However, clade C represents the most common form of HIV in the world and it remains the dominant strain in South Africa. It has been hypothesized that cognitive impairment in clade C is less likely due to a natural variation in the dicysteine motif of the Tat protein (C31S) that may reduce monocyte trafficking in the brain (Ranga et al., 2004). Consistent with this hypothesis, preliminary work conducted in Ethiopia using a limited cognitive battery suggested intact cognitive function among this population. However, the presence of the Tat defect was not examined in this study, and the limited cognitive battery may have lacked the requisite sensitivity to identify cognitive impairment. In fact, some investigators have suggested that the clade C virus may be associated with notable cognitive impairment because this clade has a high affinity for the CCR5 receptor, which is believed to increase the risk for neuropathogenesis.

Further, preliminary work by our virology collaborators in South Africa has revealed notable variation in the C31S Tat defect in clade C and we have also identified cognitive impairment among a small cohort of patients (n=8) in South Africa using a more complete battery than what had been administered to patients in Ethiopia.

To date our work in South Africa has focused on a limited number of patients and no cognitive studies of clade C have included laboratory markers of the virus. As such, it is unknown whether cognitive status in clade C occurs in the context of the Tat protein defect, or whether cognitive function relates to other known virologic correlates of cognitive function such as proviral DNA level (Shiramizu et al. 2005; 2006). Further, studies have not addressed the neuroimaging signatures of clade C HIV. Our group has developed methods of quantified diffusion tractography (Zhang et al., 2004; Paul et al., 2007) that provide an opportunity to define the neuroimaging correlates of cognitive impairment in this viral clade. Importantly our preliminary data suggest that these metrics offer unique insights into the neuropathology of HIV-related cognitive impairment. Our team is ideally placed to conduct the first multidisciplinary study of clade C neuropathogenesis. The investigative team has expertise in neuropsychology, psychiatry, neuroimaging, HIV

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laboratory biomarkers, statistics, and international HIV work and we will draw on these strengths to complete the proposed study. In addition, a Cross-University Brain-Behaviour Initiative (CUBBI) exists between the Universities in the Cape, including a research-dedicated 3 Tesla MRI (one of the few such machines in the developing world) and we have utilized this system to acquire pilot data. To accomplish the goals of the study we will include 200 treatment-naïve individuals with clade C HIV and 50 seronegative healthy controls matched on demographic characteristics (e.g., language, education, etc) and residing in South Africa. Laboratory, cognitive, and neuroimaging data will be obtained from the patients and controls. Neuroimaging will consist of diffusion tensor imaging (DTI) to derive metrics of quantified tractography developed by members of our team (Laidlaw) and traditional volumetrics (secondary aim). The study will address the following specific aims:

Aim 1. Determine the neuropsychological relevance of the Tat (C31S) defect associated with clade C HIV.

We hypothesize that:

A. Individuals infected with clade C HIV in South Africa will exhibit significantly poorer cognitive performances on tests of learning, executive function, gross motor speed, and psychomotor speed compared to demographically-matched healthy controls recruited from health clinics in South Africa.

B. The expression of cognitive difficulties will be independent of the presence of the C31S Tat protein defect previously reported in clade C, but they will covary with total proviral DNA levels.

Secondary aim. Secondary analyses will examine relationships between cognitive performance and activities of daily living.

Aim 2. Identify neuroimaging biomarkers of brain integrity in patients infected with clade C HIV. We hypothesize that:

A. The total length and number of white matter fiber bundles in the frontal brain region as defined by quantified tractography will be significantly lower among infected individuals compared to healthy control subjects.

B. The total length and number of whole brain white matter fiber bundles will correlate with performances on tests of cognitive function sensitive to HIV-associated impairment.

Secondary Aim: B. The total length and number of whole brain white matter fiber bundles will correlate with performances on tests of cognitive function sensitive to HIV-associated impairment.

To learn more about other South African Partnerships Program projects, go to (http://umsystem.edu/ums/departments/aa/southafrica/pgmpartnerships/).

**News in Brief**

**Linkage Awards**

The UMSAEP Committee met with Professor Jan Persens, UWC Director of International Relations, on September 16, 2008 in Columbia to select participants for 2009. The committee authorized awards to four UWC faculty members and five UM faculty members.

**UWC faculty receiving UMSAEP awards (UM hosts in parentheses):**
- David Fisher - Physiological Sciences (Douglas Bowles, UMC)
- Lorna Holtman - Postgraduate Enrollment & Throughput (Patricia Boyer, UMSL)
- Ehimario Igumbor - Pharmacy (Maureen Knell, UMKC)
- Sharon Penderis - Social Development (Judith Stallman, UMC)

**UM faculty receiving UMSAEP awards (UWC hosts in parentheses):**
- Delwyn Catley/Kathy Goggin - UMKC, Psychology (Thandi Puoane)
- Carl Hoagland - UMSL, Education (Shafiek Dinie)
- Marian Minor - UMC, Physical Therapy (Patricia Struthers)
- Nancy Shields - UMSL, Sociology (Kathy Nadasen)

**Linkage Awards**

The UMSAEP Committee approved awards in September for the following South African Partnerships projects:

- Jane Armer (UMC, Nursing)/Cheryl Nikodem(UWC,Nursing) – Conduct research on different approaches to treating lymphedema, conduct training course for health professionals on lymphedema management following breast cancer treatment and creation of cancer and lymphedema registries for the Western Cape.
- Carole McArthur (UMKC, Oral Biology/Dentistry) – Study the mechanisms of salivary gland disease in HIV/TB infected patients in collaboration with colleagues at UWC and Cameroon.
- Neil Anderson (M S&T, Geological Sciences & Engineering) – Teach a short course on applied geophysical techniques with specific application to groundwater resources and environmental protection of groundwater resources for UWC and carry out research in conjunction with his colleagues at UWC.

**Comparative Law at UWC**

For the fifth year, the UM-Columbia School of Law joined with the law faculty at UWC to offer a comparative law program to American and UWC law students.

The program was held at UWC from June 5 - July 13, 2008. Once again, MU Professor Rodney Uphoff and UWC Professor Pierre de Vos directed the program attended by 24 American students and 18 UWC students.

The students took comparative courses in constitutional law, criminal justice administration and alternative dispute resolution. In addition to Professors Uphoff and de Vos, MU Professor Jim Levin and UWC Professors Craig Bosch, Lovell Fernandez and Julia Sloth-Nielsen taught in the program.

**UWC Law Fellowship**

In May 2008, UWC students Ivan Rugema and Mogammod-Zain Satardien completed their studies in the MU School of Law’s Dispute Resolution Program and each earned an LLM.

Rugema and Satardien attended MU as recipients of fellowships supported by gifts to the MU School of Law from Fred White, Geoffrey Oelsner and Robert Lande.

Three other UWC students are expected to receive similar fellowships and study at MU in 2009.

**UM and UWC Visitors**

2008 UM visitors to South Africa include the following: Anthony Okafor, Mechanical & Aerospace Engineering (Missouri S&T); Wayne Wanta, Journalism (UMC); Rodney Uphoff, Planning/Law (UM & UMC); Delwyn Catley, Psychology (UMKC); Kathy Goggin, Psychology (UMKC); Jane Armer, Nursing & Public Health (UMC).

2008 UWC visitors to Missouri include: Patricia Struthers, Physiotherapy; Jose Frantz, Physiotherapy; Lindiwe Khoteng, Chemistry/Physics; Kathleen Collins, Social Work; Lungiswa Tsokile, Psychology, Thandi Puoane, Psychology & Lovell Fernandez, Law.
UM/UWC Faculty Exchange Summary Update

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UM South African Partnership Program Participants

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Mitchell Scholarship application deadlines announced

Ericka Evans of UMC, Sarah Linneman, of UMKC and Yvonne Stephan of UWC were selected as Henry Mitchell Scholars this past year. Both Sarah and Ericka attended UWC during the summer and fall of 2008. Yvonne attended MU in the fall of 2008.

The UM deadline for applications for the Mitchell Scholarship for study at UWC for the fall 2009 semester is March 1, 2009.

The application deadline for the winter 2010 semester is September 15, 2009.

An application form is available for downloading at http://www.umsystem.edu/ums/departments/aa/southafrica/pgmstudent/Henry_Mitchell_Scholarship_Application.pdf. A completed application should be sent to the international office on your campus.

Henry Mitchell Scholar Sarah Linneman’s experience extended beyond the classroom