Preamble: One Health is an integrated approach to examining diseases and health challenges that are not attributable to a single cause, but are instead the result of a confluence of factors related to environmental resources (water, air, land-use and climate change), animals (domestic and wildlife), agriculture, food security and socioeconomic/cultural factors that work concurrently and synergistically to affect health. The One Health approach is by necessity trans-disciplinary and inter-professional, bringing together researchers and practitioners from the health sciences, social sciences, law, agricultural and environmental sciences, engineering, business management and other disciplines to understand the social-biological-cultural determinants of health and devise practical and sustainable solutions to health challenges within complex social ecological systems (SES).

The purpose of this course is to provide applicants from diverse cultural and disciplinary backgrounds with the opportunity to develop and apply their leadership, communication, team-building, as well as analytical and critical thinking skills to assess and respond to global health problems arising at the human-animal-environmental interface (within a SES) and to design, implement, and evaluate practical, cost-effective, and sustainable solutions in collaboration with local...
and regional stakeholders and global partners. A combination of small and large group discussions, problem-based learning exercises and case studies will be integrated into the course whilst students are on a road trip through the north-eastern part of South Africa. The road trip provides the students with the opportunity to experience the diversity and beauty of South Africa through a One Health lens. Individual reflection and shared experiences will be used to explore health and conservation/environmental challenges, as well as leadership styles and skills, with the end-product to be more confident and effective One Health practitioners.

The experience gained in this course is designed to broaden the personal perspectives of participants to consider greater roles as innovative leaders or champions in their chosen professions as well as in new fields in the private and public sectors, including inter-professional research and education, community development and outreach, effective communication, entrepreneurial start-ups, environmental conservation and global health.

Overall Goals:

- Produce globally aware One Health (OH) practitioners who are able to understand and solve problems that take into consideration diverse disciplinary perspectives, determinants of human and animal health, environmental impacts and the cultural and socio-economic context of rural people.

- Assist these OH practitioners in developing a better understanding of the conditions and constraints encountered in addressing health and conservation issues at the interface, within a matrix of various land uses in developing countries, particularly in southern Africa.

- Provide opportunities through the social network created by this course, case examples and projects (field and community) for OH practitioners to apply their new and existing skills to develop recommendations, research projects and interventions to address human and animal health, and environmental management challenges.

- Promote the personal growth of participants to expand their career perspectives and leadership skills, inspiring and enabling them to be more effective OH practitioners both locally and globally
Learning Outcomes/Competencies

At the conclusion of the course, students will be able to:

1. Describe the One Health approach to audiences with varied backgrounds (e.g. physicians, sociologists, politicians, stakeholders) and explain how this approach has or could be applied to improve health locally and globally.

2. Describe the benefits and challenges of a multi-disciplinary, integrative One Health approach when implementing a prospective investigation into health and socio-economic concerns at the human-animal-environment interface with a specific reference to Southern Africa.

3. Describe the principles of ecosystem health and the concept of the Interface.

4. Explain the basic principles of integrated zoonotic disease prevention and control, and discuss the dynamics of disease emergence and challenges of improving health outcomes for humans and animals taking into consideration the ecosystem they share, as well as the socio-economic and environmental drivers of disease.

5. Demonstrate management and leadership skills with an understanding of political economy and governance, community mobilization and participation in the One Health Approach, collaborative leadership and ethical practice.

6. Identify the expertise and role of stakeholders and experts in defining health and environmental problems and developing strategies for solutions.

7. Use improved communication skills to better interact with communities at all levels using “out-of-the-box” techniques developed through theatre teaching, challenging conventional ideas of humans interacting.

8. Utilize the skills, knowledge and contacts acquired during this course to identify, assess, and strategize a OH approach to solve an important health problem affecting humans, animals and/or the environment at the interface.

9. Explain how policies of national and local governments can help or hinder prediction of, response to, and prevention of health problems within a region.

10. Evaluate and describe your leadership style, strengths and areas for growth. Based on this assessment develop short-term leadership goals and design a plan for increasing your leadership skills and competencies.

Application Process

The application will consist of a 1) resume including education, work experience and statement of career goals; 2) description (< 1 page) of a health or environmental challenge that the applicant has faced or considered that she/he feels would be amenable to a OH approach with an explanation as to the knowledge and interdisciplinary expertise needed for a successful investigation and/or intervention,
and 3) description of applicant’s current personal leadership skills and experience as well as skills/experience they would like to obtain in this course.

Two students per institution/university: based on consideration of costs for transportation, accommodation and staff coordination, faculty expenses and funding availability.

Submission of applications will be required by 1 April 2014 for review by committee (consisting of course leaders and faculty representing institutions that are committing faculty and resources to course development and implementation).

Applicants will be notified of selection no later than 1 May 2014 to allow them to obtain funding and for faculty to take into consideration the composition of the class in planning curriculum. Deposit will be required by 15 June 2014. As soon as deposit is paid students will be invited to join a social network of accepted students and faculty participants (and supporters) on which their photos, bios and problem descriptions from their applications will be shared. On-line resources and preparatory materials can also be provided via this site (or Drop box), as well as more information about the OH Platform and Mnisi community.

Duration of course: 13 - 26 July 2014 (includes travel, leadership/communication training, team formation & work on cases and team projects).

**Integrated Course Content and Program**

**Theme 1: Health and Conservation at the Wildlife-Livestock-Human Interface**

Natural resource conflicts and disease transmission are most likely to occur at the spatial and temporal interface between human populations, their domestic livestock and wildlife. Anthropogenic changes to our ecosystems are expanding this interface often with deleterious consequences for both people and wildlife. Political decision-making can further exacerbate the challenges at this interface. OH students will explore critical issues by talking and learning from case studies/PBL presented by researchers who are actively working to mitigate these problems, participating in field excursions to sites of wildlife-human conflict, talking with communities living near protected areas and
exploring the challenges presented to wildlife/conservation managers. Suggested activities:

1. Rain Queen, Tzaneen [www.modjadjihouse.co.za](http://www.modjadjihouse.co.za)

Bennde Mutale, near the Pafuri gate of Kruger NP (community and cross border issues, land claims, Limpopo river, traditional health approaches) [www.friendsofmutale.org.uk](http://www.friendsofmutale.org.uk)

Mnisi Community and Hvuklani Animal Clinic (University of Pretoria and Faculty of Veterinary Science rural health program) [www.up.ac.za/mcp](http://www.up.ac.za/mcp)

Phalabora Mining Company (mining and the environment, working with wildlife, sustainability) [www.palabora.com](http://www.palabora.com)

Kruger NP (conservation, disease and OH challenges, law enforcement) [www.krugerpark.com](http://www.krugerpark.com)

**Theme 2: Challenges with diagnosis, surveillance and control of zoonotic and emerging diseases in developing countries.**

Zoonotic pathogens account for the greatest number and the most serious emerging infectious diseases in people. Wildlife and domestic animals are an important part of the public health picture, as they provide a “zoonotic pool” from which diseases may emerge. We will explore the challenges to diagnosing, controlling and implementing surveillance programs for zoonotic and emerging diseases in South Africa and Southern Africa. Endemic zoonotic diseases will be highlighted including rabies, Rift Valley fever and tuberculosis, as well as the discovery process for new emerging viruses in Africa; all with an emphasis on current research. Economic diseases such as FMD will be discussed debating the rational for control and methods used, and the impacts on ecosystem health and community livelihoods. Commodity based trade will be discussed in relationship to FMD. Suggested activities:

National Institute for Communicable Diseases (NICD), Johannesburg [www.nicd.ac.za](http://www.nicd.ac.za)

Department of Tropical Veterinary Diseases, Onderstepoort [www.up.ac.za/vtd](http://www.up.ac.za/vtd)

OVI, Onderstepoort

Mnisi

Commodity Based Trade (Caprivi and Namibia work, Gavin Thomson, WCS)

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1. These are activities/places that in someway connect to the Theme, where we are able to demonstrate the One Health relevance and connectivity
Theme 3: Wildlife health, conservation and community challenges in “Boundary” and Transfrontier Conservation Areas.

One Health participants will learn about the health and conservation challenges faced by professionals working within and near conservation areas in South Africa. Understanding the attitudes and perspectives of rural people towards conservation and health, as well as the critical role that they play in ensuring the sustainability of conservation efforts will be emphasized and discussed. Suggested activities:

Kruger NP and Skukuza www.krugerpark.com

Limpopo National Park www.limpopopn.gov.mz

BTB study group

Phalabora Mining Company www.palabora.com

Theme 4: Health and conservation policy at the national and global level.

National and international treaties, conventions and policies affect health and conservation in developing countries. Political, legal and policy implications arising from contentious environmental concerns will be addressed in the discussion of case studies/PBL. Participants will also gain familiarity with South African laws and policies regarding the environment, wildlife, livestock and public health. The governmental structure and procedures for implementing health and conservation policy in the countries represented by the various participants in the course will also be discussed to assess in what ways OH practitioners can best engage with policy makers to promote policies that will improve health and benefit conservation efforts. Suggested activities:

National Institute of Communicable Diseases www.nicd.ac.za

Apartheid Museum www.apartheidmuseum.org/

Evening:

Richard Burroughs: trade and regulations, TOPs as an example
Michael Kock: Rhino poaching (Hoods and Robin Hoods, to trade or not to trade)

**Theme 5: Developing leadership and communication skills to lead change and effectively implement the OH approach to advance the health and livelihoods of communities and promote sustainable ecosystems.**

An effective OH practitioner and leader must be able to understand diverse leadership styles and approaches that she/he can apply, as well as work effectively with their OH teams. In the course, participants will gain experience working together to align a diverse multi-cultural and multi-disciplinary organization or team to achieve consensus on a shared vision with integrity, cultural awareness, and respect for others. Participants will learn how to apply the principles of participatory leadership to address problems working in multidisciplinary teams and using processes that include brain-storming, strategizing solutions and prioritization. Theatre will be used to enhance participants communication skills and challenge their comfort zones. Skilled and experienced theatre personnel with a strong environmental and community background will provide an afternoon of fun and learning, students must be prepared to get physical! Throughout the course they will gain experience in developing hypotheses, strategic plans and recommendations based on mission(s) and goals that are specific, action-oriented, measurable, and timely. This leadership and communication theme will extend throughout the course to inspire participants to reach their personal goals and potential in ways that foster engagement within the OH practitioner community. Our hope is that this engagement of faculty and trainees in the OH practitioner community will be continued beyond the course through the social network, and serve as a source of empowerment, coalition-building and dissemination of best practices. Suggested activities:

**Theatre for Africa (TFA, www.theatreforafrica.co.za)– afternoon session (2-3 hours on the first day)**

**Communication practitioner – facilitator. UoP, elsewhere?**

**Specific Laboratory and/or Field Skills – If we wanted to have a list of skills to be learned, here are some suggestions:**

- Human and animal health convergence: Health assessments on animals (small, livestock, wildlife?) and humans (?) – components of history, exam, diagnostic test skills i.e. blood exam, parasite exam, simple snap & patient side tests
- Disease surveillance and monitoring
- Ecology/environment assessment skills (EIA) - (relating to water, forest/bush, wildlife)
- Agricultural assessment skills (crop health and productivity)
Infrastructure assessment skills (water, sanitation, waste disposal, schools, public services)

Community assessment (socio-economic, cultural, demographic) and needs

Communication (written and oral) of project proposal for funding, educational outreach, public media, government policy

Team building, delegation of responsibility and conflict management. Theatre sessions.

Leadership

Ideas:

Kruger NP, buffalo immobilization, health check and sampling, recovery

Discussions on BTB issue within KNP and beyond its borders (OH driven)

Olifants River, pansteatitis, crocodiles and silver carp

Draft Program

Sunday, 13th July: Evening welcome reception at Postgraduate Centre

Monday, 14th July: Johannesburg and Postgraduate Centre
Morning session:
Apartheidmuseum, Johannesburg
Afternoon session:
Onderstepoort campus
Overview of One Health perspective:
  - Mike Kock - Regional
  - Alex Caron – CIRAD
  - Clara Bocchino - AHEAD

Tuesday, 15th July: Johannesburg and Postgraduate Centre
Morning Session:
National Institute Communicable Diseases
Afternoon Session:
Onderstepoort Faculty tour
One Health open discussion

Wednesday, 16th July: Travel to Tzaneen and Rain Queen – Sleep in Tzaneen
Visit Vhembe Biosphere Reserve and Modjaji the Rain Queen in the cycad reserve

Thursday, 17th July: Head for Phunda Maria (KNP) and Bennde Mutale
Visit Bennde Mutale community and overnight in Phunda Maria

Friday, 18th July: Phunda Maria (KNP) and Bennde Mutale
(Possibly TFA and community theatre, engagement). Theatre for Africa (effective communication, community engagement, theatre and the environment, show video “Africa Unbottled”) OR
We engage with TFA at Bennde Mutale, afternoon of theatre and community, participation of students, how to communicate and have fun!

**Saturday, 19th July: Drive south to Phalaborwa**
Meet SANParks staff (lectures)

**Sunday, 20th July: Mine visit and head for HHWRS**
Visit mine operated by the Phalabora Mining Company

**Monday, 21st July: HHWRS**
Visit Mnisi Community Project
Visit Hvuklani Animal Clinic

**Tuesday, 22nd July: HHWRS**
Visit Wits Rural human health clinic
Round table discussion

**Wednesday, 23rd July: South through KNP to Satara**
Game viewing and relaxing

**Thursday, 24th July: Drive to Skukuza**
Morning:
Game viewing, relaxing
Afternoon:
Discussions with SanParks vets

**Friday, 25th July: Skukuza**
Presentations: Markus Hofmeyr, Danie Pienaar, Danie Govender
Buffalo or elephant capture/immobilization (see if SANParks has a scheduled field operation)
Lecture on rhino poaching situation (Major General Jooste)
Lecture on poaching and socio-economic/community factors (Clara Bocchino)

**Saturday, 26th July: Head for Pretoria -Post Graduate Centre**