**Course Announcement**

Agro ecology - thematic focus area under Building Stronger Universities Project (BSU II) is announcing a short course on

# *Integrated Crop-Livestock-Aquaculture Biosystems*

**Offered December 05 to 09, 2016 at SUA Main Campus**

**Learning Outcomes:**

- ✓ Analyse social-economic and environmental challenges pertaining to Crop-Livestock–Aquaculture biosystems and their solutions
- ✓ Advise on the management of social-economic and environmental challenges pertaining to Crop-Livestock–Aquaculture biosystems
- ✓ Design a sustainable integrated Crop-Livestock–Aquaculture enterprise by means of an interdisciplinary approach
- ✓ Apply principles of climate smart agriculture to improve the sustainability of Crop-Livestock–Aquaculture biosystems

**Course Contents:**

Identification and evaluation of factors affecting integrated crop-livestock-aquaculture biosystems for farm productivity and environmental sustainability; Frameworks and strategies for integrating crop-livestock-aquaculture biosystems for economic, diversification, integration, environmental and social benefits; Climate smart agriculture for integrated biosystems; Management and economics of integrated crop-livestock biosystems; Globalization of agriculture and its challenges and opportunities for agroecological production including organic farming.

**COURSE PLAN**

| Day | Session |
|---|---|
| Monday | ✓ Introduction and excursion to Animal, Aquaculture Farms<br>✓ Systems theory |
| Tuesday | ✓ Understanding and analysing mass, nutrient and economic flows in an integrated system<br>o Defining systems- elements and boundaries<br>o Building relevant internal and external flows<br>o Methods to estimate forage intake and crop yields in practical farming systems, Examples of research |
| Wednesday | ✓ Management and optimization of integrated systems<br>o Interaction between the production and the decision making system (management)<br>o Plan, control and actions – operative management<br>o Indicators, values, perceptions |
| Thursday | ✓ Environmental and resource efficiency assessment of integrated systems<br>o Regional and global challenges<br>o Methods and tools at farm level<br>o Methods and tools at product level (life cycle assessment methodology)<br>o Define a relevant research question (groups of 2-3) and scientific aim |
| Friday | ✓ Development of project proposal-set up, data collection, methods for assessment<br>✓ Course evaluation |

**Practical Skills:**
Modelling the compartment of a production unit with focus on detailed characteristics of the compartments; Analysis and assessment of case studies using real farm data; Design and management of crop, livestock and aquaculture enterprises for economic viability; Assessment of impact of inputs used in integrated production systems

**Participants:**
SUA-Postgraduate students and academic members of staff. There is an upper limit of 15 participants. Priority will be given to PhD students. Female participants are encouraged to apply.

**Facilitators:**
Prof. John Erik Hermansen, Troels Kristensen from Denmark in Collaboration with SUA academic members of Staff

**How to Apply**
Interested participants should submit their applications with a justification for the need to participate (by email) to the BSU II Project – Agro ecology focus area to Dr. Anthony Sangeda, email address: sangedaaz@gmail.com and copy to Prof John Hermansen at john.hermansen@agro.au.dk

The course will start with an excursion to Animal and Aquaculture Farms in Morogoro Municipality

**Deadline for application: 01 December, 2016.**