Afrique One

"African Research Consortium for Ecosystem and Population Health: Expanding Frontiers in Health"

Learning Package

Complementary Training Modules in Research Administration and Management

One Health **initiative**

The **Afrique One** «Ecosystem and population health: expanding frontiers in health» consortium was set up with the support of the Wellcome Trust to strengthen African's universities and research institutions through individual and institutional capacity development and to promote health related research synergies and networks.

Vision: A continent in which ecosystem and population health research excels, is globally recognized, and makes significant contributions to the health and well-being of Africa's human and animal populations.

Afrique One comprises **13 African institutions in 7 countries**. The main activities are **(i)** PostDoc Fellowship Programme **(ii)** Lecturer buy-out **(iii)** Training in key areas based on individual and institutional needs **(iv)** Short term exchange visit across member institutions **(v)** Modest infrastructure & equipment support fund and **(vi)** Policy pairing and stakeholder involvement.

4 modules of research capacity building

2015 edition

"Research administration and management"

MODULE CODE: TIIIR•RAM 01

Scientific research requires a range of capacities that still are too rarely offered by training institutions (universities and institutions of higher education). In this context, the Learning Package was developed to provide African young scientists with the essential skills to become competitive at an international scale. The Learning Package is made of 18 courses grouped in 4 training modules: (i) Administration, human resources, rules and procedures, (ii) Software tools, (iii) Project design and implementation, and (iv) Communication in Science. These modules are delivered by CSRS-certified trainers in French or English, and are all accompanied with practical exercises to ensure a good understanding of the content. After being trained researchers will have improved their understanding of research environment and will be able to conceive and manage a project, to collect and analyse data, to manage their scientific references, and to communicate their scientific results specifically in English.

The Learning Package was developed in 2012 at CSRS in the frame of the Afrique One capacity building programme. Modules were chosen based on the most critical needs identified across Afrique One institutions and partners, by CSRS and Afrique One training coordinators. The Learning Package is now delivered annually at CSRS for newly recruited researchers, master students and PhD candidates, and has been successfully externalised in several anglophones and francophone countries. Hence the Learning Package is already in its sixth edition and recorded more than 200 attendants from more than 15 universities and institutions. Given its success, it is intended to accredit the 4 training modules at doctoral programs interface in partnership with African universities or to develop a Master courses modules.

A Administration, human resources, rules and procedures

1 Rules and procedures in research institutions

COURSE CODE: RARP01

All research institutions have internal rules which goal Is to facilitate procedures but that are sometime difficult to handle by researchers. This course provide participants with a global insight to research institutions rules and organisation in order to make them more familiar with formalised procedures.
Attendees will be introduced to:

- Rules of procedure in a research institution
- Research contracts and agreements
- Equipment purchasing procedure
- Discrimination-free recruitment procedures
- Career pathway
- Time management
- Research insurance

Theory: 2 hours
Exercises: 2 hours
Practical session: Assessment of an institution organization

2 Budgeting, fund management and financial reporting

COURSE CODE: RARP02

Budget management is rarely the first skill of researchers although this is the core of any research project. This course aims at making researchers aware of the general rules of budget and funds management in order to meet funder's requirements. The course covers:

- Project costing (overheads)
- Budget elaboration and consolidation
- Budget execution procedures
- Donors requirements
- Expenses justification, eligibility
- Basic accounting
- Budget follow-up
- Financial monitoring of a research project
- Financial reporting

Theory: 4 hours
Exercise: 4 hours
Practical session: For a given project, budget design, implementation, reporting

3 Research governance

COURSE CODE: RARP03

The course will give to future institution managers the tools to build strong institution and monitor success. The course is mainly intended to current managers and they will be introduced among other to:

- Knowledge economy in a global world and competitive funding
- Building research environment
- Institution ranking monitoring and evaluation, norms
- Societal rule of universities and research institutions
- Institution strategic planning and dash board
- Monitoring and evaluation (Indicators)
- Audit and quality control
- Shared communication (Internal and external)
- Dialog with stakeholders and decision makers
- Knowledge management

Theory: 2 hours
Exercises: 2 hours
Practical session: Strategic planning monitoring and evaluation

4 Partnership principles

COURSE CODE: RARP04

Scientific research success is based on a win-win partnership. This course renew attendants view on how they should build and consolidate their partnerships and aim to demonstrate how important it is to build partnership agreements ahead of any implementation. The course covers:

- Partnership, networking, collaboration
- The 11 principles of a successful partnership
- Internationalisation
- Evaluation of partnership

Theory: 2 hours
Exercises: 2 hours
Practical session: History and evaluation of and MoU in the frame project

5 Research ethics, integrity, intellectual property, genetic resources management

COURSE CODE: RARP05

The societal role of research should be considered while protecting actors. The research ethics and integrity have become important in the international regulations as well as the management of genetic resources.

- Introduction to clinical trials
- Ethical clearance application, conditions
- Consent form
- Risk assessment
- Legal and institutional aspects
- Supervision, responsibilities
- Conflict of interest. Data security
- Intellectual property right
- Plagiarism
- Peer review and authorship
- Law and regulation on genetic resource management (CTS)

Theory: 4 hours
Exercise: 4 hours
Practical session: institutional and national ethical committees

6 Safety in laboratories and research stations

COURSE CODE: RARP06

Risks in laboratories and research stations are often neglected due to a lack of knowledge, habits, restricted delays or lack of funds (obsolete or broken material). In this context, it is important to remind researchers the general safety rules to follow while running their researches. This course covers:

- Hazard pictograms
- Actions to avoid and hygiene rules in laboratories
- Safety actions while manipulating human biological material in research stations and while travelling.
- Good Laboratory Practices (GLP)
- Standard Operating Procedures (SOPs)
- Insurance

Theory: 2 hours
Exercise: 2 hours
Practical session: SOPs construction, lab tour

B Software Tools

7 Introduction to office softwares

COURSE CODE: ST07

Any researcher must manage the basic rules allowing to use properly Word®, Excel® and PowerPoint®. Knowing the basic features of these software and some tricks considerably improve the quality of produced documents and significantly reduces the time spent while producing these documents. Participants will learn:

- Word® standardized terms of use
- Styles, footnotes, summaries and indexes in Word®
- Word®, Excel® and PowerPoint® useful shortcuts
- Functions and figures in Excel®
- PowerPoint® templates
- Interactive PowerPoint®

Theory: 4 hours
Exercise: 4 hours
Practical session: Document designing

8 Collaborative tools

COURSE CODE: ST08

Research collaboration frequently involves researchers from distant institutions, making it difficult to organise and monitor research projects commonly. This course initiates attendants to several tools that allow group-working and distance-working. In particular tools that allow:

- Information and data sharing
- Agenda sharing
- Opinion surveys
- Collaborative writing
- Online meeting and associated helpful tools

Theory: 2 hours
Exercise: 2 hours
Practical session: Building shared data

9 Reference management

COURSE CODE: ST09

Literature review is critical to make a research with quality that follows international standards. However the difficulty to access some articles and the abundance of articles make literature review difficult. This course aims at giving several guidelines and tools to find and manage references efficiently. Attendees will be trained to:

- Bibliography research (research web sites)
- Installation of a reference management software (Zotero or Jabref...)
- Creation of a database with a reference management software
- Importation of documents and their references from various websites to a reference management software;
- Insertion of citations into a Word document
- Automatically listing of bibliography in a Word document
- Tricks for articles archiving
- Open access

Theory: 4 hours
Exercise: 4 hours
Practical session: Construction of references

10 Data Safety

COURSE CODE: ST10

The information or data storage of data may lead to data loss or privacy violation because of hardware failure or viruses. This module aims at introducing attendees to several principles of data safety. Participants will be introduced to:

- Data encryption ;
- Data saving ;
- Data archiving ;
- Introduction to several tools: Servers management, DropBox, Box, 1fichier.com.

Theory: 1 hours
Exercise: 1 hours
Practical session: Securing own data

C Project Design and Implementation

11 Inter- and transdisciplinary approaches

COURSE CODE: PDI11

The number of transdisciplinary publications is increasingly important and it is now difficult to work locked in a single discipline. This course emphasis the scope of inter-transdisciplinarity for research and show how interactions matters for the success of a research project and the appliance of its results.
The course introduces participants to:

- Global change and sustainable development
- Theories, concepts
- Complexity (research question, hypothesis)
- Transdisciplinary research and its principles
- Designing transdisciplinary research
- Monitoring and evaluation
- Ecohealth and One Health concepts

Theory: 4 hours
Exercise: 8 hours
Practical session: Project designing and Field visit

12 Project planning, grant writing, fundraising

COURSE CODE: PDI12

Project planning is the logistical aspect of project elaboration. It is critical when resources are limited and are becoming more and more important as productivity and efficiency become the primary indicators of success. In addition, proper project elaboration is the keystone in fundraising and project hunting. Knowing tricks to develop a project of high quality is hence vital in research. Participants will understand how the task flow chart can help them to plan and monitor their projects. They will learn how to build their budget accordingly to their task flow, to control for changes, and to make a good project closure. Participants will be trained to:

- Project definition
- Project cycle
- Project planification
- Project writing (Requirements and key success factors of a project, project quality criteria)
- Fundraising (list of funding agencies, eligibility check)
- Project implementation
- Project reporting
- Organisation of a scientific event: workshop, seminar, conference, etc.
- Financial monitoring of a research project
- Financial reporting

Theory: 8 hours
Exercise: 16 hours
Practical session: From research project drafting and planning to grant writing.

13 Qualitative research: data collection and analysis

COURSE CODE: PDI13

More and more project include qualitative data collection and analysis with the rise of interdisciplinarity, since these data contribute to explain population's behaviours or be complementary to quantitative data. In this context this is not only social scientists and anthropological scientists but also scientists who are more familiar with quantitative methods who need to be trained to qualitative approaches. The course covers:

- Qualitative research scope
- Qualitative data collection methods
- Analysis and processing of qualitative data with the Maxqda software
- Mixed methods

Theory: 4 hours
Exercise: 8 hours
Practical session: Survey design data entry and analysis

14 Quantitative methods: collection and processing of survey data

COURSE CODE: PDI14

Statistics are upstream and downstream of any good research. This course aims to recall the process of conducting a study keeping in mind the rules allowing to have statistically interpretable data. It shows how we collect, process and analyses quantitative data. Attendees will be trained to:

- Definition of statistical units, statistical variables, and statistical categories
- Selection of a sampling technique
- Questionnaire design
- Software for data entry and data analysis
- Principles of statistic inference

Theory: 4 hours
Exercise: 4 hours
Practical session: Test choice and quick introduction to the R software

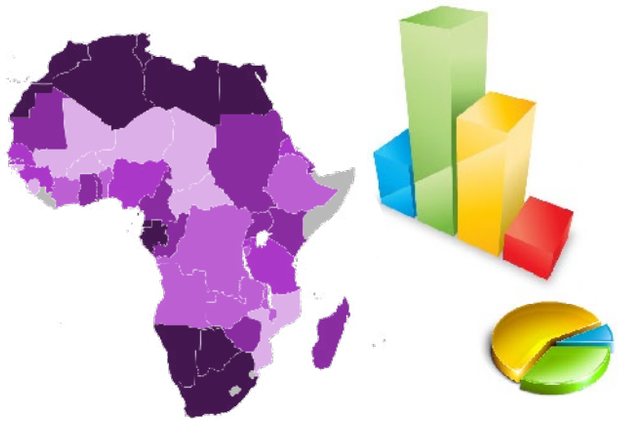
15 Geomatics (CIS, Remote Sensing, CPS and Mapping)

COURSE CODE: PDI15

Geomatic has become a remarkable tool for decision making. The use of maps to present statistical information is increasingly required by decision makers. It is also very often very necessary when it comes to analyse epidemiological data. This course covers:

- Scope of geomantic
- Geomatic data management
- Planning a GIS-GPS field survey
- Main features of GIS

Theory: 4 hours
Exercise: 4 hours
Practical session: Mapping data and softwares



D Communication in Science

16 Scientific english

COURSE CODE: CS16

Today, it is impossible to access the international the international scientific literature and to communicate research results to a wide audience without speaking and being able to work in English. This course aims to provide non Anglophone researchers with several tools to progress in English. The course introduces attendees to:

- Online and offline useful guides
- Sentence structure, paragraph writing
- General rules to help improve their English

Theory: 2 hours
Exercise: 2 hours
Practical session: paper translation (section: abstract, introduction, methods, results, discussion, conclusion)

17 Communication with pairs, media, public and decision makers

COURSE CODE: CS17

Communication has become important and a big challenge for research as the need to access information for understanding and behaviour change is increasing. Audience is diversified and need adapted communication tools to better inform and share the knowledge. The current course intends to cover aspects such as:

- Defining audience
- Communication tools and channels
- General rules in communication
- Oral presentation at conference with good power point slides
- Poster design and presentation
- Briefs, highlights, interview
- Website design

Theory: 2 hours
Exercise: 2 hours
Practical session: Selection of audience and designing message with an adapted channel.

18 Scientific writing

COURSE CODE: CS18

Doing research is useless without an efficient communication of research results. This course aims at showing challenges of scientific communication and introduces attendants to key aspects of scientific writing. Participants will be introduced to:

- Article structuration
- Thesis structuration
- Scientific writing
- Journal choice
- Journal guidelines.
- Publication strategy
- Ranking (impact factor)

Theory: 4 hours
Exercise: 12 hours
Practical session: Paper writing for a given journal

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