In addition, specific learning outcomes for the MDP program identify essential knowledge and skills that each MDP graduate should acquire throughout the course of the program. Although the MDP learning outcomes are categorized by discipline and knowledge area, specific courses and learning activities would be anchored in an understanding of the inter-relationships between fields and course content would integrate cross-disciplinary approaches for sustainable development.

### HEALTH SCIENCES

#### Competency Area

<table>
<thead>
<tr>
<th>Core Knowledge</th>
<th>Policy</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nutrition</strong></td>
<td></td>
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<tr>
<td>Basic nutritional and caloric requirements for human populations</td>
<td>Knowledge of policies to support increased investments in nutrition and health programs</td>
<td>Assessing nutritional needs for a local population and designing interventions to effectively address those needs</td>
</tr>
<tr>
<td>Major causes of malnutrition and its affect on human development and economic growth</td>
<td>Policies to support school feeding programs</td>
<td>Designing, managing and implementing local nutrition programs such as school feeding programs and seed banks</td>
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<tr>
<td><strong>Health and Epidemiology</strong></td>
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<tr>
<td>Basic epidemiology of infectious and non-communicable disease</td>
<td>Epidemiological methods used to measure disease rates and their use in the development and evaluation of health programs and policies and in prevention of infectious diseases</td>
<td>Managing health delivery systems including infrastructure, medical supply chain management and human resource management</td>
</tr>
<tr>
<td>Tropical disease epidemiology and vector control</td>
<td>Policies and regulations required to support quality health systems in resource-poor settings</td>
<td>Effective and appropriate techniques used in community health education to promote improved sanitation and hygiene, to prevent disease and injury, and to promote community participation and local management of the health care system</td>
</tr>
<tr>
<td>Control and prevention strategies used to combat infectious and non-communicable diseases in developing countries</td>
<td>Rational and informed approaches to health policy formation</td>
<td></td>
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<tr>
<td>Priority initiatives to improve child health and survival</td>
<td>Financing mechanisms for health and development</td>
<td></td>
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<tr>
<td><strong>Population Science</strong></td>
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<tr>
<td>Key interventions required to improve access to quality maternal health, reproductive health and family planning services</td>
<td>Policies to promote gender equality and health education to enable women and men to make informed family planning decisions</td>
<td>Assessing the health status of a population to identify priority areas for intervention and developing appropriate frameworks for action to address priority health issues</td>
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<tr>
<td>Reproductive health, family planning and child spacing strategies</td>
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<tr>
<td>Connections between high fertility rates and poverty</td>
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### NATURAL SCIENCES

#### Competency Area

<table>
<thead>
<tr>
<th>Core Knowledge</th>
<th>Policy</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture, Forestry and Fisheries Management</strong></td>
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<tr>
<td>Sustainable agriculture, forestry, fisheries practices, technologies and innovations</td>
<td>Policies affecting food security and market stability</td>
<td>Managing sustainable agricultural practices in the field (education, community participation, local and national management strategies)</td>
</tr>
<tr>
<td>Factors affecting land degradation, soil fertility, plant growth, pest control, forestry, fisheries and animal production, and the associated economic, environmental and social implications</td>
<td>Policies and factors affecting land tenure, access to water, inputs and credit</td>
<td>Developing financing models for national scale programs, including the integration of public and private partnerships</td>
</tr>
<tr>
<td>Use of science, engineering and technology to improve agricultural productivity in hostile land (i.e. improved drought resistance, salt tolerance, etc.)</td>
<td>Indicators and mapping systems for national food insecurity and vulnerability and their applications in risk assessment, policy and practice, as well as the link between population dynamics, resource management and food insecurity</td>
<td>Developing comprehensive and appropriate interventions, which integrate local knowledge with international experience to target food production, land use, water management and access to the domestic, national and international markets</td>
</tr>
<tr>
<td>Supportive infrastructure for agricultural production including irrigation systems, markets and research</td>
<td>Policies to ensure adequate income for farmers through the diversification of activities</td>
<td>Implementing capacity and skill-building programs to encourage the participation of farmers in local, regional and global markets</td>
</tr>
<tr>
<td>Nutritional and caloric requirements of human populations</td>
<td></td>
<td></td>
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<tr>
<td>Ecological impacts of agriculture, pesticides and land</td>
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### Competency Area

**SOCIAL SCIENCES**

#### Intended Learning Outcomes

<table>
<thead>
<tr>
<th>Core Knowledge</th>
<th>Policy</th>
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<tbody>
<tr>
<td>Ability to apply understanding of relevant economic, political and logistical factors as well as the social and cultural context in order to design an effective strategy to “scale-up” interventions</td>
<td>Ability to design and adjust appropriate delivery strategies to achieve an intervention’s desired outcome</td>
<td>Developing appropriate economic growth strategies to combat poverty and inequality while taking into account the social, demographical, economical environmental, and political contexts in developing economies</td>
</tr>
</tbody>
</table>

**Economics**

- Micro and macro economic principles and their application within the context of developing countries
- Key policies used to confront the economic impacts of natural disasters and war, and to promote poverty reduction and sustainable growth
- Key private and social incentives and inputs to develop human capital and maintain income growth and their effect on household decision in education, gender allocations, fertility, health, nutrition, land use, microenterprise development, etc.

- Developing appropriate economic growth strategies to combat poverty and inequality while taking into account the social, demographical, economical environmental, and political contexts in developing economies
- Development planning process and distinct roles of government agencies and international financial institutions

**Energy**

- Basic concepts of energy conversions and global energy flows
- Policies affecting the use and distribution of energy and the financing of energy sources
- Critical problem analysis and problem solving to identify appropriate, affordable, assessable, and sustainable solutions to challenges such as power production, transportation, distribution and demand
- Analysis of technical alternatives and cost-benefits for renewable sources of energy including the potential for carbon-credits

**Engineering and Urban and Rural Planning**

- The impact of technology and infrastructure on economic, environmental and socio-cultural systems
- Planning and managing infrastructure projects
- Critical problem analysis and problem solving to identify appropriate, affordable, assessable and sustainable solutions to development challenges such as transportation, water and wastewater systems and telecommunication systems
- Disaster management including preparedness, post-disaster planning and the construction of temporary facilities and basic services

**Environment, Water and Climate Science**

- Fundamental principles of evolutionary and ecological processes
- Local and national management of environmental protection programs
- Developing strategies to promote protection and conservation of water resources through coordinated efforts of governments and communities
- Management options to change land use systems to generate carbon credits

**Information Systems Design and Management**

- Knowledge of basic technologies used to transfer and share information, and the associated opportunities to mobilize partners from developing countries to engage in information sharing and virtual mentorship
- Integrating the use of ICTs and GIS to inform the project design, through the use of comprehensive needs assessments, risk analysis and dynamic monitoring and evaluation tools

### Degradation

Impacts of climate change and related adaptation measures including: agricultural practices, crop cycles and crop mixing.
### Education
- Key factors that affect access to quality formal education and measures to ensure equitable access for marginalized and vulnerable populations
- Structure and basic components of education systems in centralized and decentralized contexts
- Incentive systems used to improve quality of and access to education
- Recruitment, incentives, training and professional development strategies to support effective teaching
- Effective emergency, non-formal, vocational and adult education programs, and the successes and failures of such programs in a range of contexts

### Politics, Anthropology and Social Studies
- Methods for participatory planning and evaluation
- Key concepts of social dynamics, including culture, power and social relations within households, communities and across societal groups
- Human rights, with an emphasis on the rights of children, women and vulnerable populations
- International treaties, trade law, migration law and governance
- Politics of conflict, racism and forced migration

### Statistics
- Principles and methods of data collection, quantitative and qualitative data, sampling procedures and data analysis
- Normal linear models, analysis of variance, simple and multivariate regression analysis
- Integrative data analysis and basic expertise in systems dynamics
- Ability to use statistical software (SAS/STATA) to analyze normal linear models and simple and multivariate regressions
- Ability to apply logical approaches to analyzing data for appropriate use in policy, project elaboration, monitoring and evaluation and program management.

### MANAGEMENT

<table>
<thead>
<tr>
<th>Competency Area</th>
<th>Core Knowledge and Skills</th>
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</table>
| **Budget Planning, Financial Management and Commodities Management** | Key concepts of financial management including the elaboration of budgets, grant proposals and corresponding activity plans  
Key concepts of commodities management integrating lessons from real-world challenges of production management, procurement and distribution of, for example, medical supplies  
Budget-planning processes, international financing structures and systems of credit and microfinance  
Procurement and logistical processes in developing countries and resource-poor settings and the development of effective and appropriate distribution plans.                      |
| **Communications and Negotiation**                  | Verbal communication skills and ability to effectively interact with partners and stakeholders from diverse cultural backgrounds  
Written communication skills and effective proposal writing skills  
Ability to work collaboratively with multiple stakeholders to negotiate important decisions, policies and programmatic strategies to achieve outcomes that positively affect development goals  
Use of critical self-reflection to analyze attitudes, perceptions and biases, how they are formed and how they affect choices |
| **Geographic Information Systems (GIS)**             | Basic concepts, structures and functions used in geographic information systems (GIS) as well as the applications of GIS in development policy and planning  
Skills using GIS software such as ArcGIS, and the ability to interpret GIS maps  
Integrating the use of ICTs and GIS to inform the project design, through the use of comprehensive needs assessments, risk analyses and dynamic monitoring and evaluation tools |
| **Institutional and Human Resources Management**     | Leadership skills for human resource management including the ability to mentor and inspire co-workers and subordinates  
Knowledge of relevant human resources policies and procedures  
Ability to provide institutional leadership guided by an ability to understand and analyze the strengths and weaknesses of an organizational structure; identify available resources and potential opportunities; and recognize internal and external challenges |
| **Monitoring and Evaluation**                        | Ability to identify and implement appropriate systems of monitoring and evaluation to be incorporated into the project design  
Methods of data collection and key indicators used in monitoring and evaluation  
Ability to analyze data collected during the monitoring and evaluation process and recommend adjustments or adaptations to the project when appropriate |
Knowledge of the theories and commonly-used processes of project cycle management and log frame analysis (LFA) including: identification, analysis, design, implementation and monitoring and evaluation.

- Ability to conduct an in-depth analysis of geographical, environmental, political, historical, religious and institutional landscape of a development challenge.

The appropriate selection and identification of project indicators in the project design.

- Ability to facilitate collaborative and participatory approaches to project design and knowledge of commonly used techniques such as SWOT analysis, stakeholder mapping and problem and objective analysis.

- Ability to collate and synthesize relevant information into a logical and cohesive project proposal.

- Ability to develop and implement effective work plans for project staff and participants.

- Ability to integrate knowledge gained from monitoring and evaluation systems into the project design or the revision of project objectives or activities.