GEOGRAPHIC INFORMATION SYSTEM (GIS)

Learning Modules for College Level

Preparation Guide

CCDMD

Contents

Summary

This guide provides you with information regarding the content, organization and suggested use of the instructional materials on CCDMD's Geographic Information System (GIS) website.

Instructional materials for GIS

The GIS website is offered as a kit to provide teachers and students with the instructional materials required to start using GIS.

This **Preparation Guide** and the **Set-up procedure** page of the website provide information and instructions to prepare you to use the **learning modules**.

The **learning modules**, which are organized in a progressive order, are designed to help users learn and experiment with the basic functions and procedures of ArcExplorer – Java Edition for Education (AEJEE) by producing maps and resolving authentic geographic problems.

- In **Module 1**, you are introduced to the general purpose of GIS and to the interface of ArcExplorer – Java Edition for Education (AEJEE) in an approach that combines theory with practice.
- In **Module 2**, you apply functions and procedures to solve geographic problems while learning more tools in ArcExplorer – Java Edition for Education (AEJEE).
- In **Module 3**, you work with an existing project to carry out some mapping procedures to increase your knowledge about a specific geographic issue.
- The **Videos**, which accompany module sections through hyperlinks, are step-by-step demonstrations accessible via the website at any time.

The instructional materials respect the requirements for the integration of Information and Communication Technology (ICT) in college-level Social Sciences programs in the province of Québec. They comply with the general objectives for the *Introduction to Geography of the World* course at CEGEP Champlain – St. Lawrence, as well as those of most English-speaking colleges in Québec.

The **Overview of the Instructional Materials** (see page 6) provides a summary of the various instructional items included on the website.

Goal of the instructional materials

The goal of the instructional materials is to increase skills and competencies in the practical application of GIS, and to provide basic knowledge about major themes in geography courses. The simple exercises include data (attributes), geographic reference files (boundary files) and instructions that can be immediately used in a geography curriculum.

Intended users

The instructional materials were developed for teachers and students in the *Map of the World*, *World Geography* and *Introduction to Geography* courses in English-speaking Québec colleges. The materials are also suitable for the public at large. They are appropriate for all those who want to understand how a GIS works.

Prerequisites

Users should have basic computer knowledge for browsing the Internet and using software such as Microsoft PowerPoint, Microsoft Excel or their equivalents.

Required resources

Users must have access to a computer (ideally one per person, but it is also possible to work in small teams), as well as access to the Internet (high-speed recommended). The use of presentation software such as PowerPoint and spreadsheet software such as Microsoft Excel is also recommended.

The activities and exercises are completed using ArcExplorer – Java Edition for Education (AEJEE). It is free and readily available for use by teachers and students. Download information is provided in the **Set-up procedure** page on the website.

Suggested use

The use of the GIS instructional materials is quite flexible. Once you have read this **Preparation Guide**, and have downloaded and installed the ArcExplorer – Java Edition for Education (AEJEE) software with bundled data files, it is strongly recommended you start with **Module 1**, since each module is a prerequisite for the next. The first module can be integrated into an introductory geography course so that students will learn about GIS and the procedures used in GIS, as well as develop basic GIS skills. The subsequent modules (**Modules 2** and **3**) present different thematic content for the development of more advanced GIS skills.

Approximate duration

Each module takes approximately two hours for students to complete once the **Set-up procedure** on the website has been completed. You can expect to spend approximately six hours in total to complete the three **learning modules**.

Evaluation

The exercises included in the learning materials are formative and not intended for formal evaluations. Each teacher decides if and how evaluation is to be carried out. However, the modules may be adapted for evaluation purposes by assigning values to the procedures for the production of a finished and interpreted project. It may be useful to emphasize the reasoning that drives the use of GIS, since geographic inquiry and interpretation are central to treating the data. It is up to the instructor to evaluate the breakdown of marks or points should a more formal evaluation be applied.

Overview of the instructional materials

The GIS website includes the following sections: **Before you start, Learning modules, Videos, References** and **Info**. The description of each one with its subsections is included in the table below.

Before you start
- Preparation Guide (PDF): general preparatory information for teachers and students
- Set-up procedure: a checklist of requirements with necessary links to download the free and readily available GIS software, for teachers and students

Learning modules (PDF)
- Practical demonstrations on how to apply GIS techniques in the social sciences

	Module 1	Module 2	Module 3
Title	**Where in the World Is…?**	**Putting the Mississippi on the Map**	**Urban Centres and Earthquake Hazards**
General objectives	• Produce a map of the West Coast of Canada using ArcExplorer – Java Edition for Education (AEJEE)	• Use GIS to find information about features • Produce a map of the Mississippi River, giving details about the length of its basin, its tributaries and a major city, using ArcExplorer – Java Edition for Education (AEJEE)	• Use GIS to analyze earthquake hazards for large cities • Produce a map of analytical results using ArcExplorer – Java Edition for Education (AEJEE)

Videos
- Sections of the modules with links to corresponding step-by-step video demonstrations

	• Using ArcExplorer (AEJEE) • Viewing your map • Working with geo-graphic information • Finding your point • Creating your final map	• Using ArcExplorer (AEJEE) • Putting the procedure into action • Mapping it out	• Using ArcExplorer (AEJEE) • Putting the procedure into action • Mapping it out

References
- References to learn more about GIS

Info
- FAQ and comments, Conditions for use, Credits

Your next step is to return to the website and consult the Set-up procedure page in the **Before you start** section.