

Advanced GAMS Class  
**Introduction**

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# Advanced GAMS Introduction

## Objectives and Method

### A. Learning objectives

1. Better use of current GAMS
2. Advanced features in GAMS
  - a. Will introduce many but go fast
  - b. Backup provided by examples and documents
3. Model Debugging
  - a. Within GAMS
  - b. With GAMSCHK
4. Improved large Scale Modeling

### B. Time is short -- Extensive back up Course Materials

1. Course reference backup on pdf
2. Overhead copies
3. CD-ROM
  - a. All class examples
  - b. Reference Materials

### C. Mix of listening and doing hopefully about 50/50

## Advanced GAMS Introduction Class Conduct

### Class materials – a guide to their structure

This class is supported by documents and class examples.

The fundamental documents are the **overheads** which are distributed in your **notebooks**. The overall course outline indicates the name of the overheads that will be under use during each course segment.

The overheads refer to other course support documents and examples. These include **class examples**, **reference materials** and other **overheads**.

**Class examples** are in the subdirectory **example** and are contained in a subdirectory that is consistent with the name of associated overhead series. Thus, when working with GAMSIDE material the overheads are called **useide** and the class example files are in the **example/useide** subdirectory. Generally I try to place filenames in **green** within the overheads.

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**Class materials – a guide to their structure**

**Reference materials.** Generally the reference materials appear under the subdirectory **document** or in the **GAMS User Guide** that I have written which is accessed through the IDE. In the class overheads references to these materials and to other overheads are colored in **purple**.

**Class applications.** During the class there will be references made to several real applications. One is provided to you. The files implementing the U.S. agricultural sector model is kept under the subdirectory ASM.

## Advanced GAMS Introduction

### Main Reference Documents and their Function

Reference Name <sup>a</sup>	Brief Title	GAMS Features	Improved GAMS usage	Model Debugging	GAMSCHK Usage	Large Scale Modeling
<a href="#">fixmodel.pdf</a>	So Your GAMS Model is not Working Right by McCarl	X	X	X	X	X
<a href="#">gnupltxy.pdf</a>	GNUPLTXY Users guide by Schneider	X	X			
<a href="#">Newbook.pdf</a>	Applied Math Programming by McCarl and Spreen		X	X		X
<a href="#">Rutherford.htm</a>	Web page accessing utilities by Rutherford	X	X			
<a href="#">Sensitivity Analysis.htm</a>	GAMS document on sensitivity analysis				X	
<a href="#">tips.pdf</a>	Tips on GAMS usage by McCarl	X	X			
<a href="#">usegck.pdf</a>	An article on using GAMSCHK			X		X
<a href="#">erwinhomepage.htm</a>	Erwin Kalvahagen's web site with a number of utilities		X	X		X
<a href="#">createlib.pdf, uselib.pdf</a>	Material on building and using library in IDE	X	X			
<a href="#">gamsmodeling.pdf, lp.pdf, mip.pdf</a>	Erwin Kalvahagen's book chapters on applied GAMS modeling	X	X			X
<a href="#">The Excel Interface Doc.htm</a>	XLIMPORT, XLEXPOR, XLDUMP documentation	X	X			
<a href="#">cgecoursenotes.htm</a>	CGE class notes	X	X			

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# Advanced GAMS Introduction

## CD-ROM Contents

Document subdirectory	All resource materials
Example subdirectory	All examples plus some other models. Generally accessed through IDE library
Yourwork subdirectory	Blank to start. Present to catch your work
Adobe subdirectory	Copy of Adobe PDF reader
Fixmodelsubdirectory	Examples from fixmodel book that is in document directory
zipfile subdirectory	Installation files as follows
basadvgams.exe	contains all class files. Run this to install files without default write protection (which happens if you copy in the cd)
gamsadds.exe	contains all additions to GAMS system mainly documents for docs directory and inclib files like gnupltxy.
Root directory	contains setup.bat that installs self extracting archives, along with installation instructions and class license file

## Advanced GAMS Class Introduction

### Course Schedule

#### Day 1

8:00-8:15	Advanced Class Introduction	
8:15-9:00	Using GAMSIDE	<a href="#">useide</a>
9:00-9:15	The Users Guide	
9:15-9:20	Hands on Introduction	<a href="#">handson</a>
9:20-10:00	Break and Hands on 8 or 12 or 13	
10:00-10:45	Controlling Algebra – Conditionals & Sets	<a href="#">condition</a>
10:45-11:30	Hands on 9	
11:30-12:15	Doing a Comparative Analysis	<a href="#">compare</a>
12:15-1:30	Lunch	
1:30-2:15	Output Improvement and Management	<a href="#">output</a>
2:30-3:15	Links with Other Programs part I	<a href="#">link</a>
2:30-3:15	Hands on 10	
3:14-4:00	Links with Other Programs part II	<a href="#">link</a>
4:00-4:45	Hands on 11 or 12 or 13	
4:45	Recess for the day	

## Advanced GAMS Class Introduction

### Course Schedule

#### Day 2

8:00-8:30	Small to Large Model Development	<a href="#">smlrg</a>
8:30-9:15	Looking at Your GAMS model	<a href="#">lookmodl</a>
9:15-10:00	Break and Hands on 14	
10:00-10:45	Calculations	<a href="#">calculat</a>
10:45-11:30	Hands on 15	
11:30-12:00	Conditional Compilation	<a href="#">condcomp</a>
12:00-1:30	Lunch	
1:30-2:30	Post Solution Debugging of Nonsensical Models	<a href="#">unreal</a>
2:30-3:15	Hands on 16 or 12 or 13 and break	
3:15-4:15	Scaling in GAMS	<a href="#">scale</a>
4:15-5:00	Hands on 17	
5:00	Recess for day	

## Advanced GAMS Class Introduction

### Course Schedule

#### Day 3

8:00-8:30	Fixing Execution Errors	<a href="#">execerr</a>
8:30-9:15	Fixing Unbounded and Infeasible Models	<a href="#">unbinf</a>
9:15-10:00	Hands on 18	
10:00-10:30	Customizing GAMS	<a href="#">custom</a>
10:30-11:00	Saves and Restarts	<a href="#">savrestar</a>
11:00-11:30	Solution, Solvers and Reformulations	<a href="#">solver</a>
11:30-1:00	Lunch	
1:00-1:45	Speeding up GAMS Execution Time	<a href="#">speedup</a>
1:45-2:15	Memory management	<a href="#">memory</a>
2:15-3:00	Break and Hands on 19	
3:00-3:45	Advanced Bases	<a href="#">advbasis</a>
3:45-4:30	Break and Hands on 20	
5:00-5:15	Wrap It Up	<a href="#">wrapup</a>
5:15	Workshop adjourns	