

Advanced GAMS Class Introduction
On Line Version

Introduction

Bruce A. McCarl

Specialist in Applied Optimization
Distinguished Professor of Agricultural Economics,
Texas A&M University
Principal, McCarl and Associates

mccarl@tamu.edu

brucemccarl@gmail.com

<http://agecon2.tamu.edu/people/faculty/mccarl-bruce/>

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. Personalized PDF of Overheads
3. Zip file
 - a. All class examples
 - b. Reference Materials

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

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Class Conduct

Class materials – a guide to their structure

This class is supported by documents and class examples. The fundamental documents are the **overheads** as distributed in the **notebooks**. Course outline indicates the overheads use during each course segment.

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

Class examples are in subdirectory **example** and are contained in a subdirectory consistent with the name of the associated overhead. Thus, when covering GAMSIDE 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.

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

Advanced GAMS Introduction

Main Reference Documents and their Function

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

Basic to Advanced GAMS Class Introduction

Class materials – a guide to their structure

A list of part of the Reference Documents and their Function

| Reference Item Name | Class Intro | Basic GAMS | Firm Analysis Modeling | Multiple Locations | GAMS for Applied Modeling | Improved Output / Spreadsheets | CGE Modeling |
|---------------------------------------|-------------|------------|------------------------|--------------------|---------------------------|--------------------------------|--------------|
| Outline | X | | | | | | |
| Newbook.pdf | | X | | X | X | X | |
| cgecoursesnotes.htm, cgeingams.pdf | | X | | | X | | X |
| erwinhomepage.htm | | X | | | X | X | |
| Fixmodel.pdf | | X | X | | X | X | |
| Rutherford.htm | | | | | X | X | X |
| McCarl User Guide (through IDE) | | X | | | X | X | X |
| Tips | | X | | | X | | |
| Usegck | | | | | X | | |
| Probab | | | | | | | |

Other documents can be gotten from GAMS web site
www.gams.com and GAMS World Forum

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Additional Reference Documents and their Function

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

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Class materials – a guide to their structure

Mccarclass Zipfile 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 |
| Fixmodels subdirectory | Examples from fixmodel book that is in document directory |
| zipfile subdirectory | Installation files as follows |
| mccarclass.exe | contains all class files. Run this to install files without default write protection |
| gamsadds.exe | contains all additions to GAMS system mainly documents for docs directory and inclib files like gnuptxy. |
| Allexamples.exe | installs library for STUDIO |
| 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 (all times US Central – Chicago)

7:30-8:00 Question session

Advanced Class Joins

8:00-8:15 Advanced Class Introduction

8:15-9:00 Using GAMSTUDIO [useide](#)

9:00-9:15 Documentation

9:15-9:45 Hands on 8

9:45-10:30 Controlling Algebra - Conditionals
and Sets [condition](#)

10:30-11:15 Hands on 9

11:15-12:00 Doing a Comparative Analysis [compare](#)

12:00-12:45 CGE modeling [CGE](#)

12:45 Recess for day

12:45- 1:15 Optional dialogue session

Overnight Comparative part of 11 and if interested 13

Basic to Advanced GAMS Class Introduction

Course Schedule

Day 2 (all times US Central – Chicago)

| | | |
|-------------|---------------------------------------|---------|
| 7:30-8:00 | Question session | |
| 8:00-8:45 | Output Improvement and Management | output |
| 8:45-9:30 | Hands on 10 | |
| 9:30-10:15 | Using Connect | connect |
| 10:15-10:45 | Hands on 11 | |
| 10:45-11:45 | Small to Large Model Development | smlrg |
| 11:45-12:30 | An intro to GAMSpy | |
| 12:30-12:45 | Basic Wrapup | |
| 12:45-1:00 | Hands on Introduction | handson |
| 1:00 | Recess for Day | |
| 1:00- 1:45 | Optional dialogue session | |
| | Farewell to Basic Class People | |
| Overnight | Hands on 14 | |

Basic to Advanced GAMS Class Introduction Course Schedule

Day 3 (all times US Central – Chicago)

Advanced and Basic to Advanced People only

| | | |
|-------------|--|----------|
| 7:30-8:00 | Question session | |
| 8:00-9:00 | Pre-solution Checking | presol |
| 9:00-9:30 | Calculations | calculat |
| 9:30-10:15 | Hands on 15 | |
| 10:15-10:45 | Conditional Compilation | condcomp |
| 10:45-11:45 | Post Solution Debugging of Nonsensical Models | unreal |
| 11:45-12:30 | Hands on 16 and break | |
| 12:30-1:15 | Scaling in GAMS | scale |
| 1:15 | Recess for day | |
| 1:15- 1:45 | Optional dialogue session | |
| Overnight | Hands on 17 | |

Basic to Advanced GAMS Class Introduction

Course Schedule

Day 4 (all times US Central – Chicago)

Advanced and Basic to Advanced People only

| | | |
|-------------|--|---------------------------|
| 7:30-8:00 | Question session | |
| 8:00-8:30 | Fixing Execution Errors | execerr |
| 8:30-9:30 | Fixing Unbounded and Infeasible Models | unbinf |
| 9:30-10:00 | Break and Hands on 18 | |
| 10:00-10:45 | Execution Time Speed and Memory | speedup |
| 10:45-11:15 | Saves and Restarts | savrestar |
| 11:15-12:00 | Break and Hands on 19 | |
| 12:00-12:30 | Advanced Bases | advbasis |
| 12:30-12:50 | Solution, Solvers and Reformulations | solver |
| 12:50-1:00 | Wrap It Up | wrapup |
| 1:00 | Workshop adjourns | |
| 1:00- 1:30 | Optional dialogue session | |