

SAAM II Version 2.2

Basic Tutorials

Introduction

SAAM II is a very powerful software tool for model development and testing using multicompartmental models. Mathematically, these models translate into systems of ordinary linear or non-linear differential equations. A flexible, graphical user interface (GUI) makes the power of SAAM II easily available to researchers with diverse backgrounds.

The purpose of the SAAM II Tutorials is to amplify the information provided in the Help Menu, and answer questions on how to use SAAM II. The philosophy behind the tutorials is to illustrate how different components of the SAAM II work using hands-on examples.

SAAM II Basic Tutorials illustrate SAAM II's most commonly used features, features that almost everyone will use at some time during the modeling exercises. The purpose of these tutorials is explained below.

SAAM II Advanced Tutorials illustrate SAAM II's more sophisticated features that are needed to model more complex experimental protocols than is usually the case.

SAAM II Basic Tutorials:

- The first two **Using SAAM II Basic** tutorials, **Getting Started with Compartmental** and **Getting Started with Numerical**, are designed to get you started quickly using SAAM II Compartmental and SAAM II Numerical. If you follow these tutorials, in less than an hour, you will be able to use SAAM II on most of your modeling problems! The remaining tutorials will help you learn how to use the basic features of SAAM II.
- **Working with Data** deals primarily with how to enter data into your SAAM II study file, and how to assign weights to your data. Data can be entered directly, from a text document or from a spreadsheet. One of the most powerful features of SAAM II is how weights (uncertainties) can be assigned to your data. How this is done can affect the FIT of your model to your data. The different options are explained in this tutorial.
- **Working with Experimental Inputs (Basic)** explains how you specify your experimental input into your compartmental model. SAAM II requires that you separate your model building mode from your experiment mode. This helps you in your keeping track of your experiment. The basic inputs are the bolus (single and multiple), constant infusion (single or multiple) and primed infusion.

- **Working with Parameters (Basic)** explains the different features of the Parameters dialog box. It also explains how to input different values for your parameters, and how to hand-fit your model to your data.
- **Working with the Sample Tool** explains how the Sample Tool is used to recreate on our model how you collected your experimental samples. Use of the Sample Tool is essential as it provides the link between the differential equations represented by your compartmental model and your data. That is, it helps you keep the units of your data consistent with your model solution. This linkage can also be managed in the Data window as you have the option of changing units in this window also.
- **Working with Plots** explains some of the plotting capabilities in SAAM II. Line plot is a method by which you can connect sequential data by a straight line; it can help in providing insights into the information content of your data (e.g. how many compartmental may be needed in your model). It also shows you how to change plot variables, the scale of your plot and the label you can associate with your plot. SAAM II's plotting capabilities are not as sophisticated as pure plotting packages. However, with Version 2.1 you can copy and paste plots into other applications or Export Plots as .emf or .eps files. If you use the Tables option (see another tutorial), you can copy and paste or export the results to other applications.
- **Working with Tables** explains how to create tabular output following a successful SOLVE or FIT which can be exported to other software tools. The user can use copy & paste or export to .csv to save Tables Data and Statistical Information to other applications.
- **Writing Reports** explains how you can keep track of your modeling session. There are two ways. One is to use the Notes window. This window, which creates a text file, can be used to cut and paste results from your modeling work into this file. The other option is to use SAAM II's ability to automatically create text files; information is automatically written into these files following a successful SOLVE or FIT. You may also choose to copy & paste or export data and results to other applications.