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# Introduction to SAS

## Lecture 1

January 26, 2006

Measurement Methods in Psychological Research

# Today's Lecture

Overview

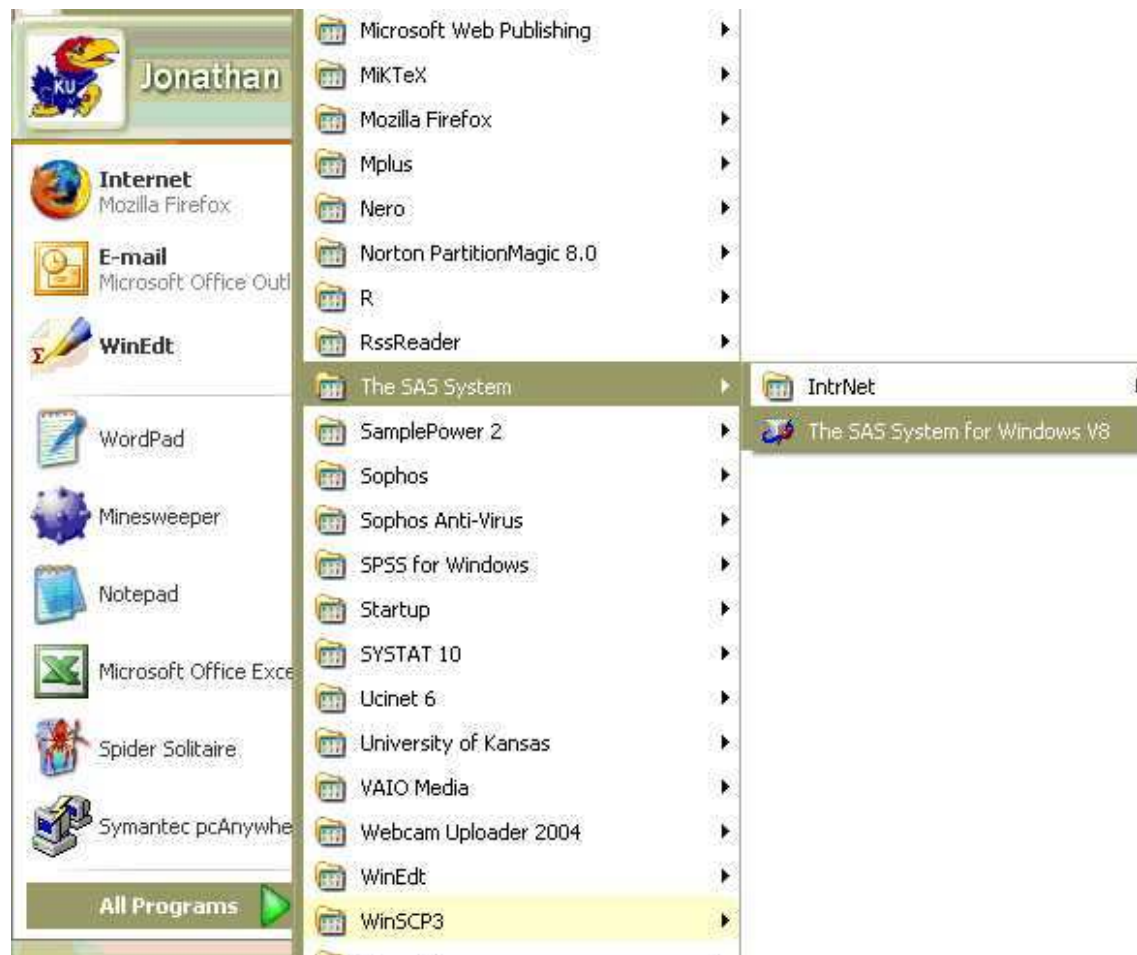
● Today's Lecture

Introduction to SAS

## ■ Introduction to SAS.

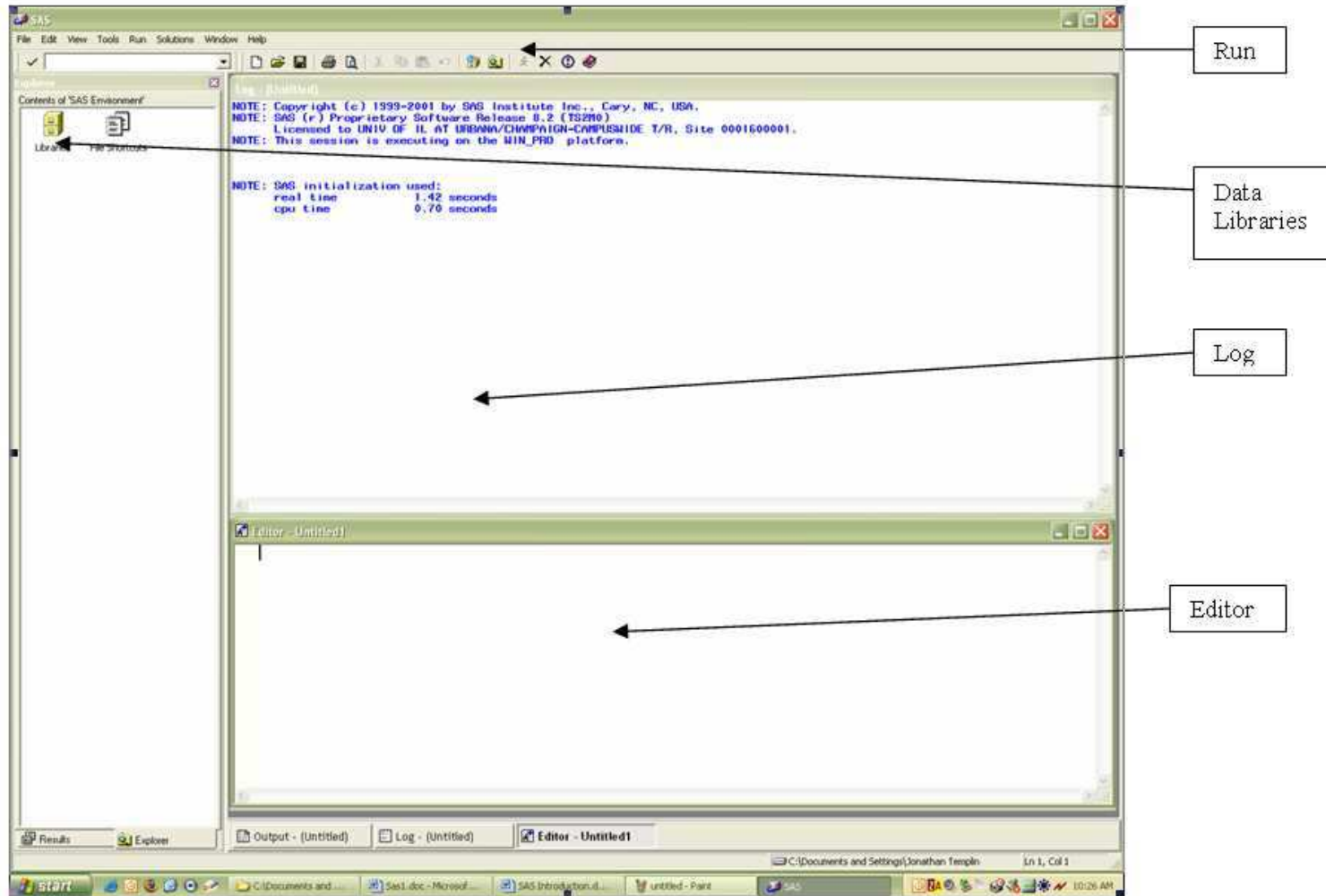
# SAS

- To start SAS, on a Windows PC, go to Start...All Programs...The SAS System...The SAS System for Windows V8.



# Main Program Window

- The SAS program looks like this (some helpful commands are shown with the arrows):



# SAS Editor

## Overview

### Introduction to SAS

- Main Program Window

- **SAS Editor**

- SAS Code

- First SAS Program

- Run

- SAS Data Libraries

- SAS Procedures

- Next Class

- To run SAS you must create a file of SAS code, which the SAS processor reads and uses to run the program.
- Simply type your SAS code into the Program Editor window.
- For our example today, we will create (and save to) a new SAS code file, so to do that be sure to have your cursor inside of the editor window and go to File...Save...
- SAS code files usually end with the extension \*.sas.

# SAS Code Basics

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- For use in day-to-day statistical applications, SAS code consists of two components:
  - ◆ Data steps (where data input *usually* happens.
  - ◆ Proc steps (where statistical analyses *usually* happen.
- General exceptions to these rules exist.
- All statements terminate with a semicolon (this is usually where errors can occur).
- Commented code can begin with:
  - ◆ An asterisk (\*) for single lines - terminated with a semicolon.
  - ◆ /\* for multiple lines, terminated with an ending \*/.
- Enough talk...how about an example? Type the following into the SAS Editor:

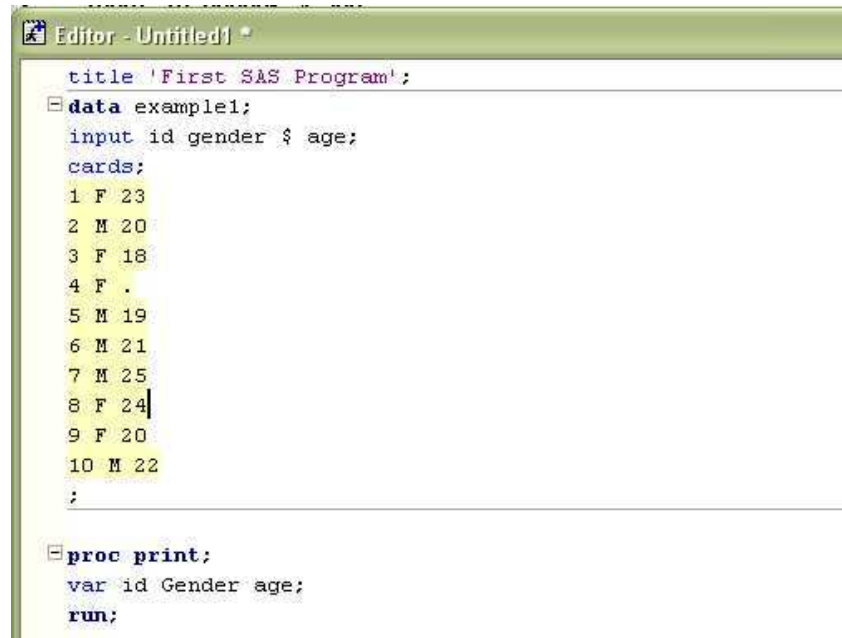
# First SAS Program

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```
title 'First SAS Program';  
data example1;  
input id gender $ age;  
cards;  
1 F 23  
2 M 20  
3 F 18  
4 F .  
5 M 19  
6 M 21  
7 M 25  
8 F 24  
9 F 20  
10 M 22  
;  
  
proc print;  
var id gender age;  
run;
```

# First SAS Program

Notice the color scheme of the SAS Enhanced Editor (note: if you do not see color, do not panic, you may not have the Enhanced Editor installed).



```
title 'First SAS Program';
data example1;
input id gender $ age;
cards;
1 F 23
2 M 20
3 F 18
4 F .
5 M 19
6 M 21
7 M 25
8 F 24
9 F 20
10 M 22
;

proc print;
var id Gender age;
run;
```

- Items in light blue are command words (like “input” or “var”).
- Items in dark blue are procedural words (like “proc,” “data,” or “run”).

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# Run the SAS Program

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- To run the program you just entered, press the running man icon at the center of the top of the SAS main program.
- Once you press the “run” button, the log window will become active, giving you information about the program as it executes.
- In this window you will see errors (in red), or warnings (in green I think).
- As multivariate progresses, you will become aware of instances where warnings will be present because of problems in your analysis.
- Also now appearing is a new window called output...this is where the output of the procedure that was just run is displayed.

# SAS Data Libraries

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- The data set you just entered is now part of a SAS data library that can be referenced at any point during the remainder of the program.
- The default SAS data library is called “work,” and can be accessed by clicking through the explorer window on the left hand side of the program.
- Double click on Libraries...Work...Example1 and you will see the data displayed in a grid.
- To familiarize you with SAS, here are some handouts (also available on the BlackBoard Site)...

# SAS Procedures

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- The bulk of the statistical work done in SAS is through procedure statements.
- Proc statements follow a flexible syntax that typically has the following:

```
proc -statement_name- data=-data_name- [options];  
var [included variables];  
[options];  
run;
```

- The names and options are all found in the SAS manual, which is freely (shhh) available online at:  
<http://www.id.unizh.ch/software/unix/statmath/sas/sasdoc/main.htm>

# SAS Procedures Example

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- Using the Example1 data set, type the following into the editor:

```
proc sort data=example1;  
by gender;  
run;
```

```
proc univariate data=example1 plots;  
by gender;  
var age;  
run;
```

- The univariate procedure produces univariate statistics, the manual entry can be at found:

<http://www.id.unizh.ch/software/unix/statmath/sas/sasdoc/proc/z0146802.htm>

# Next Time

## Overview

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## Introduction to SAS

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- Introduction to measurement.
- Historical perspectives.