

Lecture 6

1. Graphics: Plot, Insight, SGplot, Gplot
2. Reporting SAS output in MSWord
3. Histograms from Proc Univariate

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Scatter plots 1: Proc Plot

Proc Plot is an old procedure that makes “teletype” graphics.

Fixed character width (**hpos**) and fixed interline spacing (**vpos**).

```
Proc Plot data=AAA.child_iq;
```

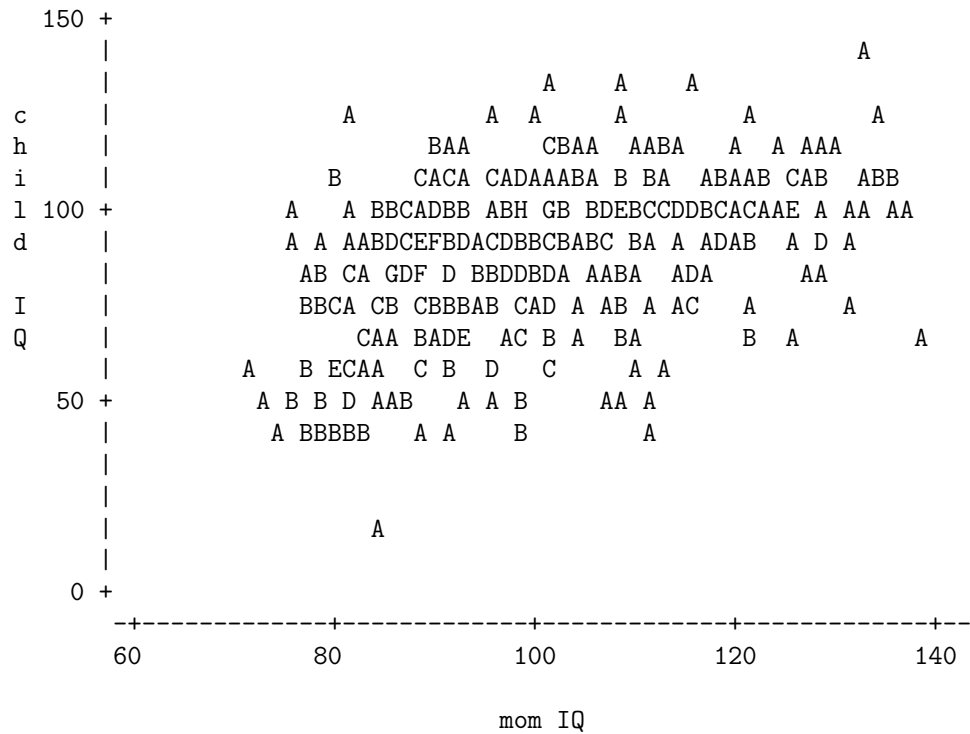
```
plot child_iq * mom_iq / vpos=25 hpos=60 ;
```

vpos and *hpos* options set vertical and horizontal dimensions in character units

vref = *constant* draws horizontal line (useful for residual plots)

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Plot of child_IQ*mom_IQ. Legend: A = 1 obs, B = 2 obs, etc.



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Scatter plots 2: Proc Insight

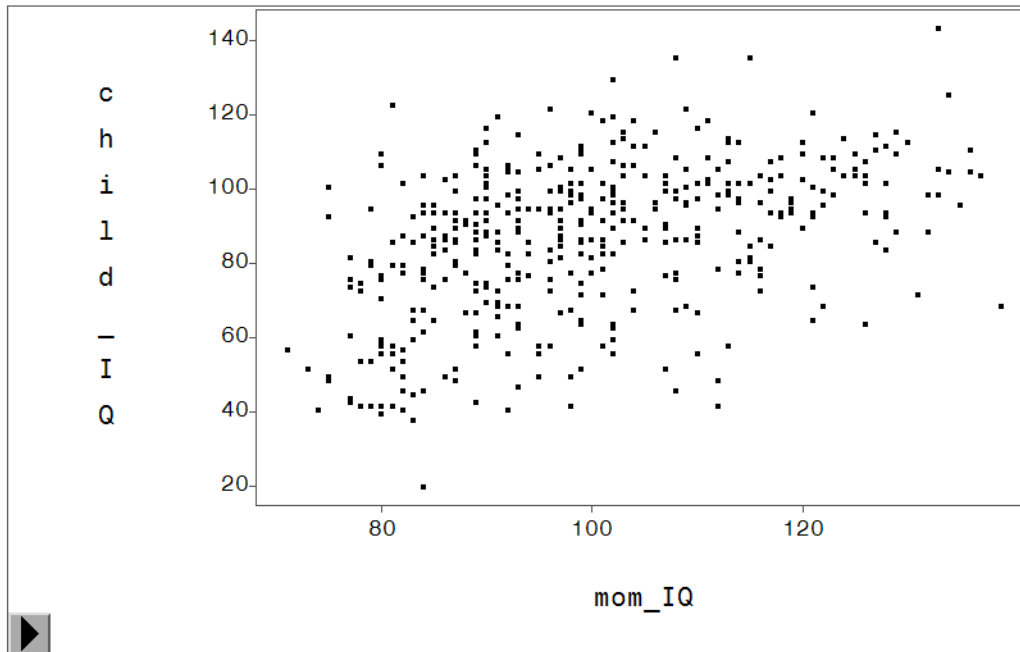
Proc Insight makes graphics interactively, and can be called in a program:

```
Proc Insight data = child_iq;
  scatter child_iq * mom_iq ;
  scatter Y- variable * X-variable
```

Procedures after this close the graphics window, so run Proc Insight separately.

Save or copy/paste from the graphics window that opens.

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No way to get different plotting symbols by gender.

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Scatter plots 3: Proc SGplot

SG = *statistical graphics*

SAS Help > SAS/GRAPH > STATISTICAL GRAPHICS PROCEDURES > SGPLOT

`ODS graphics on;`

ODS = Output Delivery System

```
Proc SGplot data=ph6470.child_iq;
```

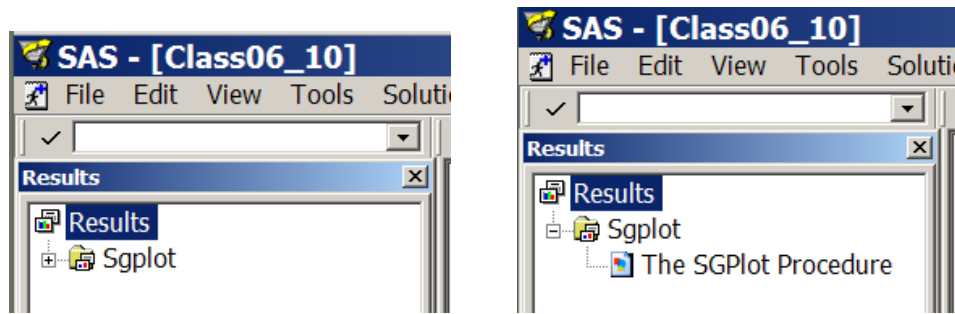
```
  scatter y = child_iq x= mom_iq /group = male ;    xaxis min=60 m
```

```
run;
```

```
ODS graphics off;
```

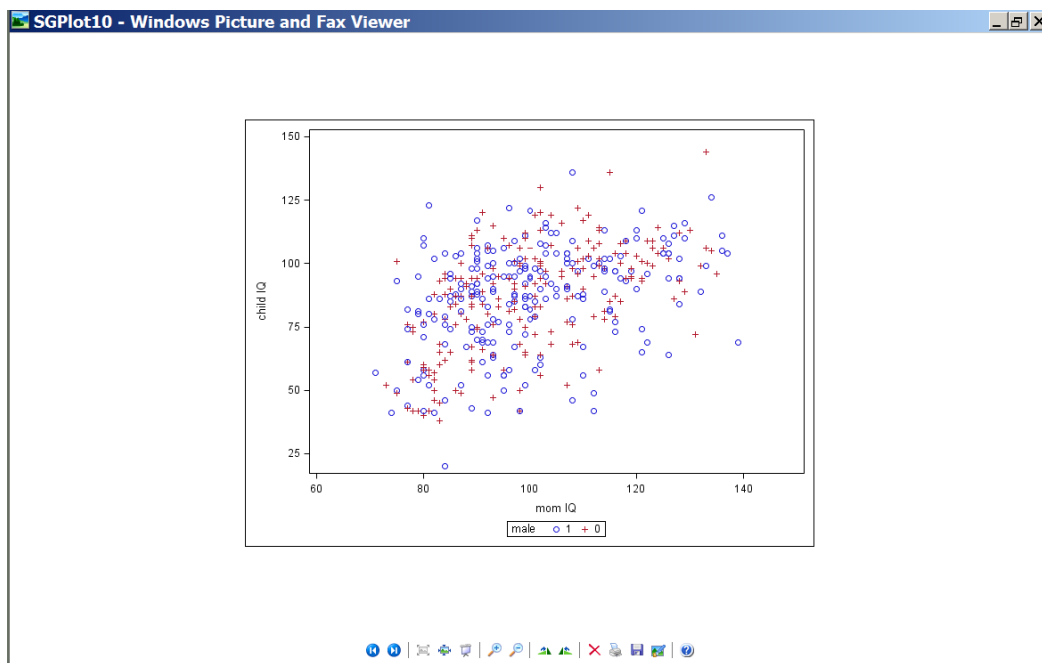
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To open the graphic, go to the Results panel on the left
click the + next to Sgplot



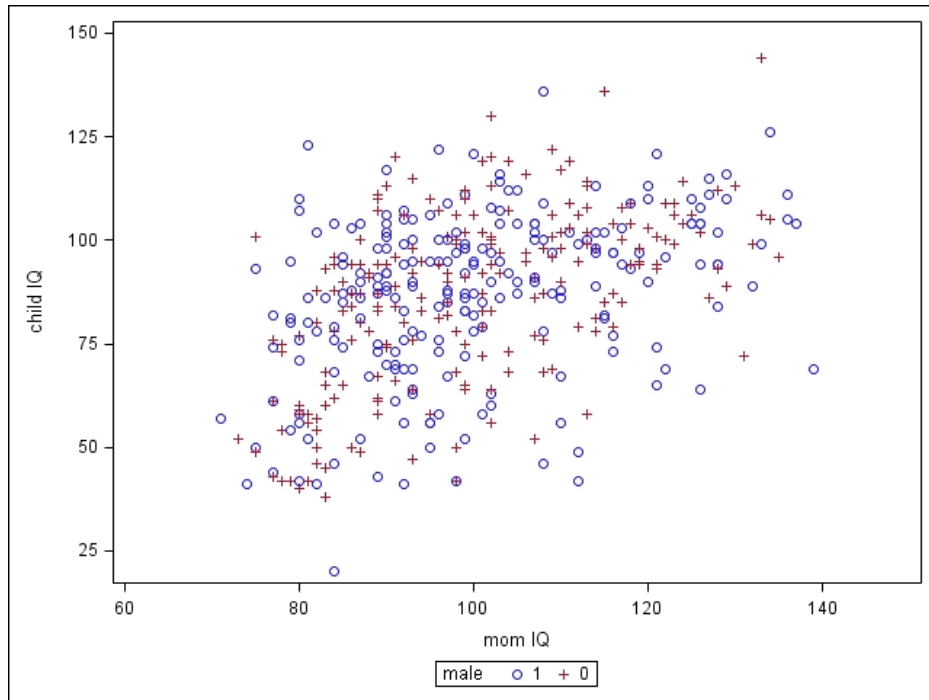
Then click on the icon next to The SGPlot Procedure

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Use the floppy-disk icon to save to desktop as JPG or GIF, then paste into MSWord.

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Different plotting symbols by gender, but no choice about marks.

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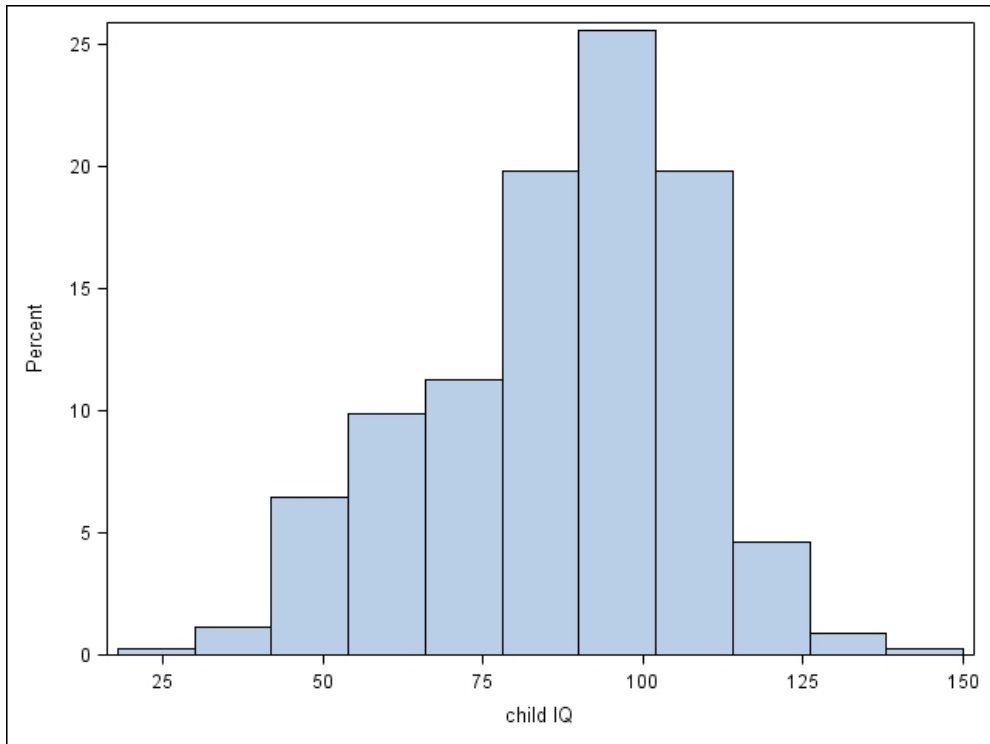
ODS graphics on; ODS = Output Delivery System

```
Proc SGplot data=ph6470.child_iq;
  histogram child_iq ;
run;
```

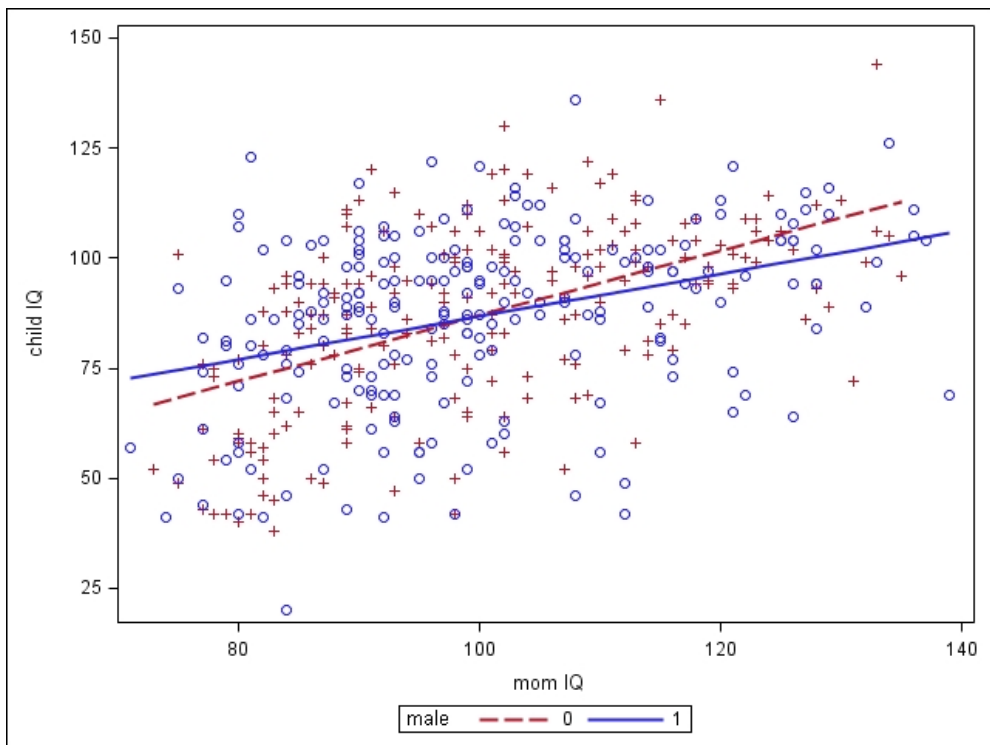
```
Proc SGplot data=ph6470.child_iq;
  reg y = child_iq x= mom_iq /group = male; linear regressions by group
run;
```

```
Proc SGplot data=ph6470.child_iq;
  loess y = child_iq x= mom_iq /group = male ; smooth by group
run;
ODS graphics off;
```

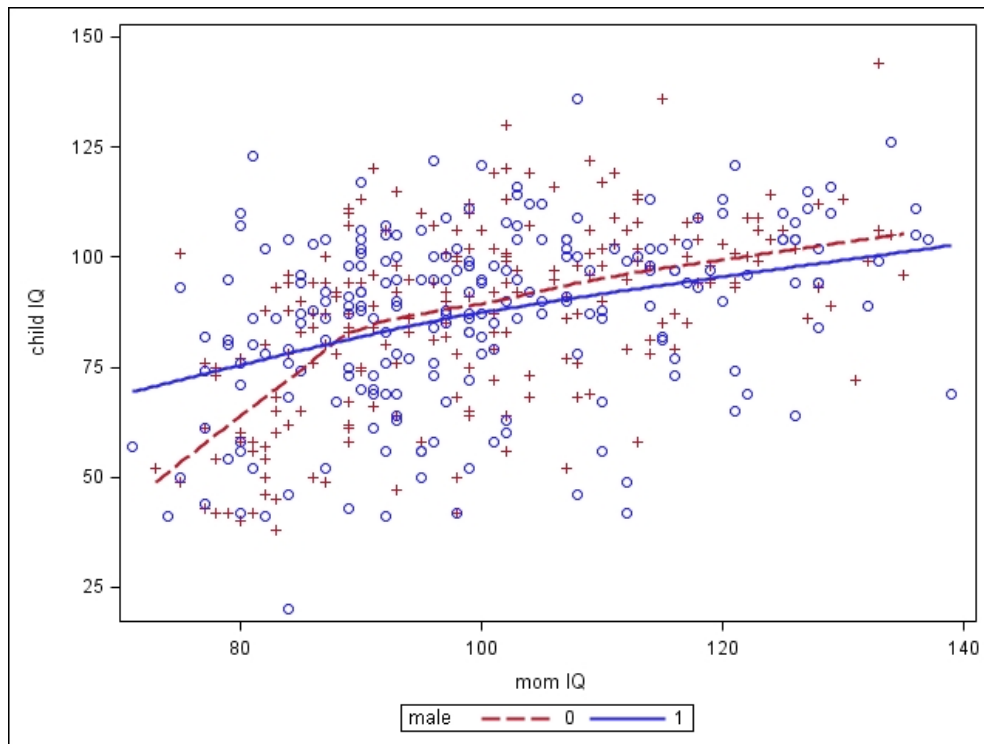
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Scatter plots 4: Proc Gplot

GPlot offers more options and control than SGplot.

SAS Help > SAS/GRAPH > Procedures and Statements > All Procedures > GPLOT

Options *formatting and output statements* ;

```
Proc Gplot data=ph6470.child_iq;
```

```
plot child_iq * mom_iq = male ; Y-variable * X-variable = Group variable
```

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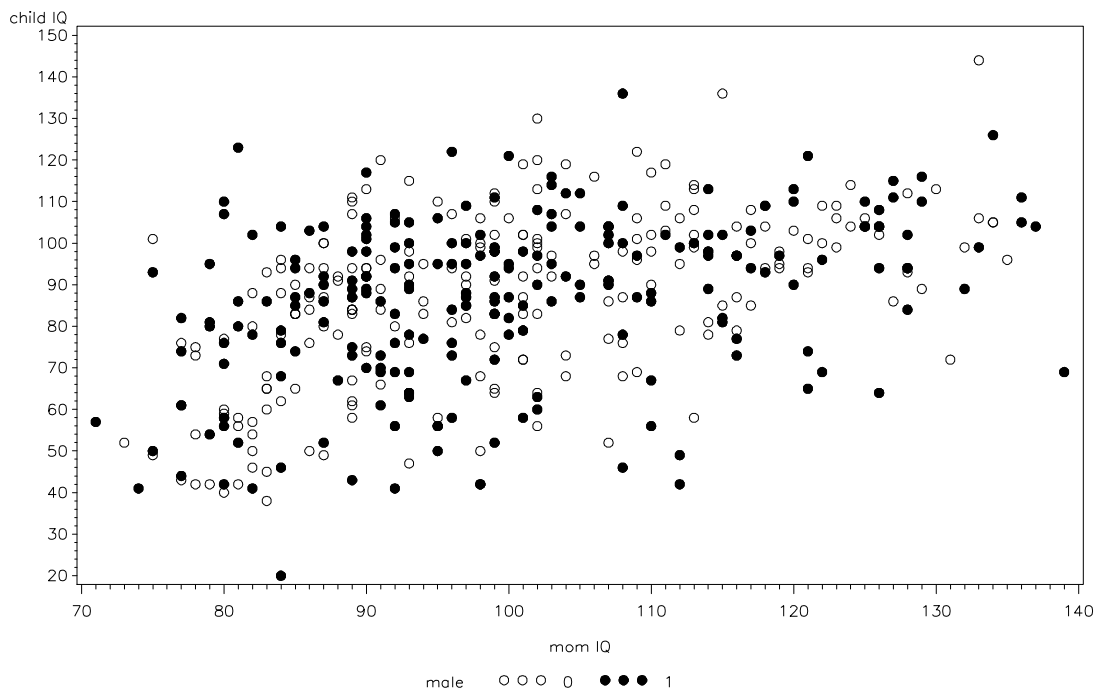
```
Goptions reset=all device=GIF gsfname=graphout gsfmode= replace
noborder vsize=5in figure height in inches
ftext=simplex lfactor=2.5 ; thicker lines
filename graphout "C: ... Class05.gif "; or change both to pdf
```

```
symbol1 value=circle height=1 color=black; open circles
symbol2 value=dot height=1 color=black; filled circles
```

```
Proc Gplot data=ph6470.child_iq;
plot child_iq * mom_iq = male ;
```

One *symbolN* statement for each group (value of the grouping variable)

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GIF graphics from Gplot or Insight: from MSWord, choose

Insert > Picture > From File

To crop extra white space around the figure, or select part of a figure, chose

View > Toolbars > Picture

to get a cropping tool. See MSWord Help for details on cropping.

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Histograms from Proc Univariate

Many procedures now make decent graphics.

```
Goptions reset=all device=pdf gsfname=graphout gsfmode= replace
noborder vsize=5in ftext=simplex ctext=black lfactor=2.5;
filename graphout "C: . . . hist.pdf";
```

```
Proc Univariate noprint data=ph6470.child_iq;
var child_iq;
histogram child_iq / endpoints= (10 to 150 by 10) cfill=graye03;
inset q1 median mean q3 / position=NW noframe;
```

Endpoints can be given in the format (start TO end BY step) for equally spaced bins, or can be given as a list of endpoints.

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