ENGR 132 – Exam 3 | **April 10, 2017**

Formula Sheet

New for Exam 3 Specific

Statistics Equations

$$s^2 = \frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2$$

$$s^2 = \frac{n\sum_{i=1}^{n}x_i^2 - \left(\sum_{i=1}^{n}x_i\right)^2}{n(n-1)}$$

Linear Regression

$$a\sum_{i=1}^{n}x_i + bn = \sum_{i=1}^{n}y_i$$

$$a\sum_{i=1}^{n}x_i^2 + b\sum_{i=1}^{n}x_i = \sum_{i=1}^{n}x_i y_i$$

$$SSE = \sum_{i=1}^{n}[y_i - f(x_i)]^2$$

$$SST = \sum_{i=1}^{n}[y_i - \bar{y}]^2$$

$$r^2 = 1 - \frac{SSE}{SST}$$

Linear

$y = mx + b$

Exponential

$y = b\, e^{mx}$

$y = b\, 10^{mx}$

Logarithmic

$y = m \ln(x) + b$

$y = m \log(x) + b$

$x = b\, e^{my}$

$x = b\, 10^{my}$

Power

$y = b\, x^m$

Selection of MATLAB plot Special Characters

Line Type	Indicator	Point Type	Indicator	Color	Indicator
solid	-	circle	o	blue	b
dotted	:	x-mark	x	green	g
dash-dot	-.	plus	+	red	r
dashed	--	square	s	black	k

MATLAB Functions / Operators

+ - * / ^ =	cos	hold	polyval
.* ./ .^	csc	i, j	prod
%	csvread	if	quit
& | ~ && ||	cumsum	Inf	round
= = < >	disp	input	sec
<= >=	doc	legend	semilogx
' (transpose)	else	length	semilogy
,	elseif	linspace	sin
:	end	load	size
;	error	log	sort
[ ] (*null vector*)	exit	log10	sqrt
( )	exp	loglog	std
... (*ellipsis*)	factorial	logspace	subplot
abs	figure	lookfor	sum
acos	find	max	tan
all	for	mean	title
ans	format	median	while
any	fprintf	min	who
asin	function	NaN	whos
atan	grid	ones	xlabel
axis	help	pi	xor
clc	histogram	plot	ylabel
clear	histogramRight	polyfit	zeros