- Monday 4 October:
  - Mobius Quiz 10 (covers up to the end of Chapter 4.4, Strong Induction).
- Tuesday 5 October:
  - **Look at your WA03 results thoroughly! Where did you lose marks?**
- Tuesday 5 October:
  - Complete reading Chapter 5 of the course notes. **Pages 82-93.**
- **Wednesday 6 October:**
  - **Submit Written Assignment 4: WA4**
- Wednesday 6 October:
  - Mobius Quiz 11 (covers up to the end of Chapter 4.4, Strong Induction).
- Thursday 7 October:
  - Look at WA5 **!!!**
- Thursday 7 October:
  - WA04 solutions will be posted, hopefully before 12pm: Check the solutions in detail!
- Friday 1 October:
  - Mobius Quiz 12 (covers up to the end of Chapter 4.4, Strong Induction).
- Reading week:
  - Practice, practice, practice, practice, practice, practice, practice, practice, practice, practice, practice, practice, practice!

MATH 135: Lecture 13

Dr. Nike Dattani

6 October 2021

Nike's Section 19

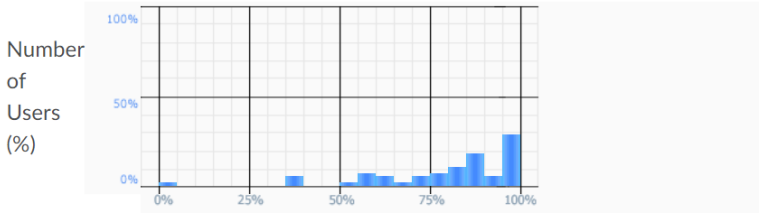
View By: Groups Groups: 1219-MATH.135.019.1.LEC Apply

WA3 Class Statistics

Number of submitted grades: 55 / 55

Minimum:		0 %
Maximum:		100 %
Average:		79.79 %
Mode:	95.83 %	
Median:	85.42 %	
Standard Deviation:	20.28 %	

Grade Distribution



Nike's Section 16

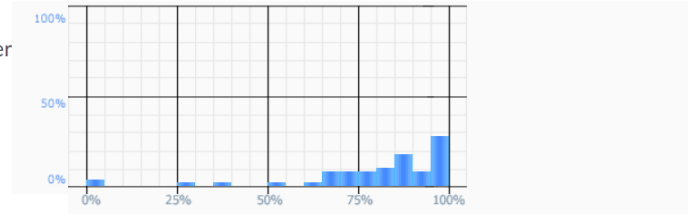
View By: Groups Groups: 1219-MATH.135.016.1.LEC Apply

WA3 Class Statistics

Number of submitted grades: 50 / 50

Minimum:		0 %
Maximum:		100 %
Average:		80.02 %
Mode:	100 %	
Median:	86.46 %	
Standard Deviation:	22.53 %	

Grade Distribution



Anton's Section 7

Number of submitted grades: 61 / 62

Minimum:		14.58 %
Maximum:		100 %
Average:		89.79 %
Mode:	100 %	
Median:	93.75 %	
Standard Deviation:	14.61 %	

Emma's Section 8

omitted grades: 57 / 57

Minimum:		0 %
Maximum:		100 %
Average:		85.26 %
Mode:	100 %	
Median:	93.75 %	
dard Deviation:	23.29 %	

Entire MATH 135

Number of submitted grades: 1,252 / 1,255

Minimum:		0 %
Maximum:		100 %
Average:		75.27 %
Mode:	100 %	
Median:	83.33 %	
Standard Deviation:	24.79 %	

umber of sub

Mark's Section 1

Minimum:		0 %
Maximum:		100 %
Average:		86.59 %
Mode:	100 %	

Ali's Section 22

Maximum:		100 %
Average:		87.26 %
Mode:	93.75 %	
Median:	91.67 %	

Ali's Section 21

Minimum:		51.56 %
Maximum:		100 %
Average:		87.03 %
Mode:	93.75 %, 91.67 %	

Nike's Section 19

Number of submitted grades: 54 / 55

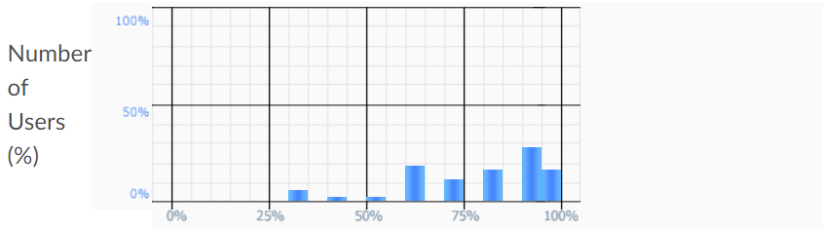
Minimum:		30 %
Maximum:		100 %
Average:		77.22 %

Mode: 90 %

Median: 80 %

Standard Deviation: 18.9 %

Grade Distribution



Nike's Section 16

Number of submitted grades: 48 / 50

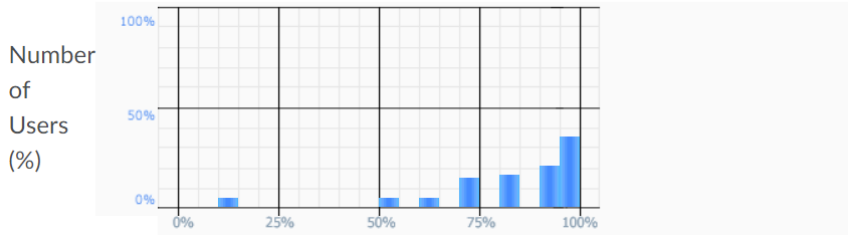
Minimum:		10 %
Maximum:		100 %
Average:		82.71 %

Mode: 100 %

Median: 90 %

Standard Deviation: 20.69 %

Grade Distribution



Anton's Section 7

Number of submitted grades: 62 / 62

Minimum:		30 %
Maximum:		100 %
Average:		79.19 %

Mode: 90 %

Median: 80 %

Standard Deviation: 17.62 %

Emma's Section 8

Number of submitted grades: 52 / 58

Minimum:		20 %
Maximum:		100 %
Average:		86.54 %

Mode: 100 %

Median: 90 %

Standard Deviation: 15.43 %

Entire MATH 135

r of submitted grades: 1,175 / 1,259

Minimum:		0 %
Maximum:		100 %
Average:		74.06 %

Mode: 90 %

Median: 80 %

Standard Deviation: 22.09 %

Mark's Section 1

Number of submitted grades: 63 / 65

Minimum:		0 %
Maximum:		100 %
Average:		82.38 %

Mode: 90 %

Median: 90 %

Standard Deviation: 19.58 %

Ali's Section 22

mber of submitted grades: 60 / 65

Minimum:		30 %
Maximum:		100 %
Average:		82.33

Mode: 90 %, 100 %

Median: 90 %

Standard Deviation: 17.64 %

Ali's Section 21

Number of submitted grades: 66 / 68

Minimum:		20 %
Maximum:		100 %
Average:		80 %

Mode: 90 %

Median: 80 %

Standard Deviation: 17.14 %

Game theory example: Prisoner's Dilemma (1950)

- Alice and Bob were both convicted of crime #1, and suspected of committing crime #2.
- Both will be sentenced to 2 years in prison (for crime #1) if nothing else happens.
- If Alice provides incriminating evidence against Bob for crime #2, and Bob stays silent:
  - Alice's 2-year sentence is reduced to a 1-year sentence (a reward for helping the police!)
  - Bob's 2-year sentence gets increased to a 4-year sentence (he's guilty ***and*** uncooperative)
- If the other way around, Bob's sentence becomes 1 year and Alice's becomes 4 years.
- If both betray each other, they both have to serve an extra year (both are guilty of 2 crimes)

		Alice: Confess	Alice: Deny
Bob	Confess	3 (Alice: 3)	4 (Alice: 1)
Bob	Deny	1 (Alice: 4)	2 (Alice: 2)

Exam Bank

MATH 135

Term	Type	Exam	Solution
Spring 2005	Midterm	Download	Download
Fall 2003	Midterm	Download	
Spring 2006	Midterm	Download	
Fall 2002	Final	Download	
Winter 2001	Final	Download	
Winter 2002	Test	Download	
Winter 2002	Test	Download	
Fall 2001	Midterm	Download	
Winter 2002	Test	Download	
Winter 2006	Midterm	Download	
Fall 2004	Midterm	Download	
Fall 2004	Midterm	Download	
Fall 2003	Quiz	Download	
Fall 2003	Quiz	Download	
Fall 2003	Quiz	Download	
Winter 2006	Midterm	Download	
Fall 2006	Midterm	Download	
Fall 2006	Midterm	Download	
Fall 2006	Final	Download	
Fall 2001	Final	Download	
Fall 2000	Final	Download	
Fall 2000	Midterm	Download	
Fall 2007	Midterm	Download	Download
Fall 2007	Midterm	Download	Download
Winter 2008	Midterm	Download	
Winter 2008	Midterm	Download	
Fall 2009	Final	Download	
Fall 2010	Midterm		Download
Winter 2012	Midterm		Download
Fall 2012	Midterm		Download

Family Name: [redacted]

Given Name: [redacted]

Id. No.: [redacted]

Math 135

Algebra for Honours Mathematics
Mid-Term Examination

2006-06-05 7:00-9:00

Instructor: B. Tasic

(b) Prove that the number of primes is infinite.

6. (a) Let a and b be integers. Prove that $a^3|b^3$ if and only if $a|b$

Name (Print): [redacted]

UW Student ID Number: [redacted]

*Note

I had no calculator!

University of Waterloo
First Midterm Test
Math 135
(Algebra for Honours Mathematics)

Instructor: R.D. Willard

Date: Monday, February 6, 2006

Term: 1061

Number of pages: 7
(including cover page)

Section: 001

Time: 7:15 p.m. to 8:30 p.m.

Duration of test: 75 minutes

Test type: closed book

Fall 2006, Midterm:

1. Let A be the statement "If n is an odd integer, then $n^2 + n$ is an even integer.
(a) (2 marks) Is A TRUE or FALSE? Justify your answer.

(b) (3 marks) State the converse of A. Is the converse of A TRUE or FALSE? Justify your answer.

(c) State the contrapositive of A.

2.
(a) (2 marks) Let $a, b \in Z$. Give the definition of the statement "a divides b".

(b) (4 marks) Let $a, b, c, x, y \in Z$. Prove that is $a \mid b$ and $a \mid c$, then $a \mid bx + cy$.

(c) (3 marks) Consider the statement
"For all $a, b, c \in Z$, if $a \mid bx + cy$ for all integers x and y, then $a \mid b$ and $a \mid c$."
Is this statement TRUE or FALSE? Prove your answer.

(d) (2 marks) Prove that the statement
"For all $a, b, c \in Z$, if there exist integers x and y such that $a \mid bx + cy$, then $a \mid b$ and $a \mid c$."
is FALSE by finding a counterexample.

Fall 2006, Final:

[6] 7. Let $f(x) = ax^4 + bx^3 + cx^2 + dx + e$ be a polynomial with integer coefficients. If $\frac{m}{n}$ is a rational root, in lowest terms, of $f(x)$, prove that $m \mid e$.