

# WORCESTER POLYTECHNIC INSTITUTE

WORCESTER, MASSACHUSETTS 01609

28-NOV-2011 15:52 DA 500002 D1/P1

NAME: POMBRIO, JUSTIN LEE

ISSUED TO STUDENT

ID: 105 12 6153

CLASS: CLASS OF 11  
MAJOR: COMPUTER SCIENCE  
MAJOR 2: MATHEMATICAL SCIENCES

ENTRY DATE: AUGUST 23, 2007  
ADMITTED FROM: MANCHESTER HIGH SCHOOL  
ADVISOR: VOLKOV, D. (MA)

DEGREE AWARDED: BACHELOR OF SCIENCE  
DATE: MAY 14, 2011  
HONORS: WITH HIGH DISTINCTION

MAJOR DEGREE REQUIREMENT	DATE COMPLETED	TITLE	CHAIRMAN/PRJ ADVISOR	UNITS	EVAL.
MAJOR QUALIFYING PROJECT	MAY 2, 2011	PROTOCOL ANALYSIS VIA THE CHASE	GUTTMAN, J. D.	1 1/3	A
INTERACTIVE QUALIFYING PROJECT	MARCH 12, 2010	PHYSICS AND EDUCATION INTERDISCIPLINARY QUALIFYING PROJECT	IANNACCHIONE, G. S.	1	A
SUFFICIENCY	MAY 6, 2010	PHILOSOPHY AND TECHNOLOGY	SANBONMATSU, J.		A

TRM	COURSE NO.	COURSE OR PROJECT TITLE	UNITS	EVAL.	TRM	COURSE NO.	COURSE OR PROJECT TITLE	UNITS	EVAL.
F07	BB 1000	BIOLOGY ELECTIVE ADVANCED PLACEMENT	1/3	L	B07	MA 2051	ORDINARY DIFFER. EQUATIONS	1/3	A
					C08	MA 2071	MATRICES&LINEAR ALGEBRA I	1/3	A
					D09	MA 2271	GRAPH THEORY	1/3	A
F07	CH 1010	MOLECULARITY ADVANCED PLACEMENT	1/3	L	D08	MA 2273	COMBINATORICS	1/3	A
					A10	MA 2611	APPLIED STATISTICS I	1/3	A
					A08	MA 2631	PROBABILITY	1/3	A
F07	CS 1000	COMPUTER SCIENCE ELECTIVE ADVANCED PLACEMENT	2/3	L	B08	MA 3233	DISCRETE OPTIMIZATION	1/3	A
					B08	MA 3823	GROUP THEORY	1/3	A
A07	CS 1102	ACCELERTD INTRO TO PROGR DES	1/3	A	C09	MA 3831	ADVANCED CALCULUS I	1/3	A
B08	CS 2011	INTRO-COMP ORG&ASSEMBLER	1/3	A	D09	MA 3832	ADVANCED CALCULUS II	1/3	A
D08	CS 2223	ALGORITHMS	1/3	A	C08	MA 4291	APPLICABLE COMPLEX VAR	1/3	A
C09	CS 3013	OPERATING SYSTEMS	1/3	A	A09	MA 4451	BOUNDARY VALUE PROBLEMS	1/3	A
B10	CS 3043	SOCIAL IMPL OF INFO PROCESSI	1/3	A	D11	MA 4473	PARTIAL DIFF EQUATIONS	1/3	C
B08	CS 3733	SOFTWARE ENGINEERING	1/3	A	F09	MA 535	ALGEBRA	1/3	B
C10	CS 4032	NUM METH FOR LIN & NONLIN SY	1/3	A					
A08	CS 4120	ANALYSIS OF ALGORITHMS	1/3	A	A08	MU 1611	FUNDAMENTALS OF MUSIC I	1/3	A
A09	CS 4233	OBJ-ORIENTED ANALYSIS & DESI	1/3	A					
A10	CS 4401	SOFTWARE SECURITY ENGINEERIN	1/3	B	D09	PE 1004	INTRO TBL TENNIS, GOLF, TENN	1/12	A
B10	CS 4513	DISTRIBUTED COMPUTER SYSTEMS	1/3	B	B08	PE 1077	SWIMMING FOR FITNESS	1/12	A
C11	CS 4515	COMPUTER ARCHITECTURE	1/3	A	C11	PE 1077	SWIMMING FOR FITNESS	1/12	A
C09	CS 4533	TECHN OF PROGR LANG TRANSL	1/3	B	C09	PE 1117	MISCELLANEOUS (YOGA)	1/12	A
S09	CS 503	FOUNDATIONS OF COMP SCI	1/3	A					
S10	CS 521	LOGIC IN COMPUTER SCIENCE	1/3	A	F07	PH 1000	PHYSICS ELECTIVE ADVANCED PLACEMENT	1/3	L
F09	CS 536	PROGRAMMING LANGUAGE DESIGN	1/3	A					
					B09	PH 3401	QUANTUM MECH I	1/3	B
A07	ECON 1120	INTRODUCTORY MACROECONOMICS	1/3	A	C10	PH 3402	QUANTUM MECH II	1/3	A
					C11	PH 3501	RELATIVITY	1/3	A
D10	HU 3900	INQ SEM:PHILOSOPHY & TECHNOL	1/3	A					
					F07	PSY 1400	INTRO TO PSYCHOLOGICAL SCIENCE ADVANCED PLACEMENT	1/3	L
F07	MA 1021	CALCULUS I ADVANCED PLACEMENT	1/3	L					
F07	MA 1022	CALCULUS II ADVANCED PLACEMENT	1/3	L	B07	PY 1731	INTRO TO PHILOSOPHY & RELIGI	1/3	A
F07	MA 1023	CALCULUS III ADVANCED PLACEMENT	1/3	L	C08	PY 2731	INTRODUCTORY ETHICS	1/3	A
					D08	PY 3731	PROB IN ETHICS & SOCIAL PHIL	1/3	B
B07	MA 1024	CALCULUS IV	1/3	A	A07	SP 2521	INTERMEDIATE SPANISH I	1/3	A



Heather L. Jackson, University Registrar

A BLACK AND WHITE OR COLOR COPY OF THIS TRANSCRIPT IS NOT OFFICIAL

TRANSLUCENT GLOBE ICONS MUST BE VISIBLE FROM BOTH SIDES OF TRANSCRIPT WHEN HELD TOWARD LIGHT SOURCE

# WORCESTER POLYTECHNIC INSTITUTE

WORCESTER, MASSACHUSETTS 01609

28-NOV-2011 15:52 DA 500002 D1/P2

NAME: POMBRIO, JUSTIN LEE

ID: 105 12 6153

CLASS: CLASS OF 11  
MAJOR: COMPUTER SCIENCE  
MAJOR 2: MATHEMATICAL SCIENCES

ENTRY DATE: AUGUST 23, 2007  
ADMITTED FROM: MANCHESTER HIGH SCHOOL  
ADVISOR: VOLKOV, D. (MA)

DEGREE AWARDED: BACHELOR OF SCIENCE  
DATE: MAY 14, 2011  
HONORS: WITH HIGH DISTINCTION

MAJOR DEGREE REQUIREMENT	DATE COMPLETED	TITLE	CHAIRMAN/PRJ ADVISOR	UNITS	EVAL.
MAJOR QUALIFYING PROJECT	MAY 2, 2011	PROTOCOL ANALYSIS VIA THE CHASE	GUTTMAN, J. D.	1 1/3	A
INTERACTIVE QUALIFYING PROJECT	MARCH 12, 2010	PHYSICS AND EDUCATION INTERDISCIPLINARY QUALIFYING PROJECT	IANNACCHIONE, G. S.	1	A
SUFFICIENCY	MAY 6, 2010	PHILOSOPHY AND TECHNOLOGY	SANBONMATSU, J.		A

TRM	COURSE NO.	COURSE OR PROJECT TITLE	UNITS	EVAL.	TRM	COURSE NO.	COURSE OR PROJECT TITLE	UNITS	EVAL.
A09	IQP-42-GSI-0902	INTERACTIVE QUALIFYING PROJE	1/3	A					
B09	IQP-42-GSI-0902	INTERACTIVE QUALIFYING PROJE	1/3	A					
C10	IQP-42-GSI-0902	INTERACTIVE QUALIFYING PROJE	1/3	A					
D10	MQP-ID-JOG-1467	DISTRIBUTED SECURITY	1/3	A					
A10	MQP-ID-JOG-1467	DISTRIBUTED SECURITY	1/3	A					
B10	MQP-ID-JOG-1467	DISTRIBUTED SECURITY	1/3	A					
C11	MQP-ID-JOG-1467	DISTRIBUTED SECURITY	1/3	A					
B08	PQP-CS-MKH-2008	SUMMATION TOOLS IN MAPLE	1/3	A					



*Heather L. Jackson*  
\*CONTINUED\*

Heather L. Jackson, University Registrar

A BLACK AND WHITE OR COLOR COPY OF THIS TRANSCRIPT IS NOT OFFICIAL

TRANSLUCENT GLOBE ICONS MUST BE VISIBLE FROM BOTH SIDES OF TRANSCRIPT WHEN HELD TOWARD LIGHT SOURCE

NAME: POMBRIO, JUSTIN LEE

ID: 105 12 6153

CLASS: CLASS OF 11  
 MAJOR: COMPUTER SCIENCE  
 MAJOR 2: MATHEMATICAL SCIENCES

ENTRY DATE: AUGUST 23, 2007  
 ADMITTED FROM: MANCHESTER HIGH SCHOOL  
 ADVISOR: VOLKOV, D. (MA)

DEGREE AWARDED: BACHELOR OF SCIENCE  
 DATE: MAY 14, 2011  
 HONORS: WITH HIGH DISTINCTION

QUALIFYING PAPER ABSTRACTS

QUALIFYING PAPER ABSTRACTS

MAJOR QUALIFYING PROJECT MAY 2, 2011  
 GRADE: A UNITS: 1 1/3  
 PROTOCOL ANALYSIS VIA THE CHASE

WE EXPOUND A METHOD OF ANALYZING CRYPTOGRAPHIC PROTOCOLS USING GEOMETRIC LOGIC AND THE CHASE. GEOMETRIC LOGIC IS A FORMAL SYSTEM OF LOGIC COMPARABLE TO FIRST ORDER LOGIC, AND THE CHASE IS AN ALGORITHM WHICH FINDS MODELS FOR A GIVEN GEOMETRIC LOGIC THEORY. WE USE THE STRAND SPACE FORMALISM AS A MODEL OF PROTOCOL EXECUTION. OUR WORK INCLUDES A RIGOROUS TRANSLATION OF THE STRAND SPACE FORMALISM, DEVELOPED AT MITRE, INTO GEOMETRIC LOGIC, A COMPILER THAT TRANSLATES CRYPTOGRAPHIC PROTOCOLS INTO GEOMETRIC LOGIC THEORIES, AND AN ALGORITHM FOR CHECKING ISOMORPHISM BETWEEN PROTOCOL EXECUTIONS IN A SPECIAL CASE IN LINEAR TIME.  
 CHAIR/AD: GUTTMAN, J. D.

INTERACTIVE QUALIFYING PROJECT MARCH 12, 2010  
 GRADE: A UNITS: 1  
 PHYSICS AND EDUCATION INTERDISCIPLINARY QUALIFYING PROJECT

OUR PURPOSE WAS TO CREATE TOOLS FOR THE WPI PHYSICS DEPARTMENT TO FACILITATE LEARNING THROUGH THE WEB. WE DESIGNED JAVA APPLETS AS WEB BASED LEARNING TOOLS, REDESIGNED THE LAYOUT OF THE LAB WEBSITE, AND CREATED A TOOL FOR MANAGING THE SITE'S DATA AND DESIGN. WITH THESE TOOLS THE WPI PHYSICS DEPARTMENT WILL BE BETTER ABLE TO SERVE THE STUDENTS' NEEDS THROUGH THE MEDIUM OF THE WEB.  
 CHAIR/AD: IANNACCHIONE, G. S.

SUFFICIENCY MAY 6, 2010  
 GRADE: A  
 PHILOSOPHY AND TECHNOLOGY

THE HUMANITIES AND ARTS REQUIREMENT WAS COMPLETED WITH COURSES IN PHILOSOPHY, RELIGION, AND MUSIC THEORY, CULMINATING IN A PORTFOLIO OF ESSAYS ON THE SUBJECT OF THE PHILOSOPHY OF TECHNOLOGY. THE PORTFOLIO CONSISTED OF FIVE CRITICAL SUMMARIES OF SUCH PHILOSOPHERS AS ARISTOTLE, HEIDEGGER, AND MUMFORD, AS WELL AS A RESEARCH PAPER ON MARX'S THOUGHTS ON THE EFFECTS OF TECHNOLOGY IN THE TRANSITION FROM CAPITALISM TO SOCIALISM.  
 CHAIR/AD: SANBONMATSU, J.



*Heather L. Jackson*

Heather L. Jackson, University Registrar

A BLACK AND WHITE OR COLOR COPY OF THIS TRANSCRIPT IS NOT OFFICIAL

TRANSLUCENT GLOBE ICONS MUST BE VISIBLE FROM BOTH SIDES OF TRANSCRIPT WHEN HELD TOWARD LIGHT SOURCE