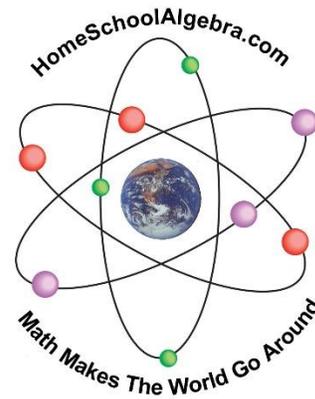


Algebra II / Intermediate Algebra

Syllabus



Instructor	Clark Brown	Phone	(702) 714-0133
E-mail	clark@homeschoolalgebra.com . This is the best way to contact me; I check it throughout the day. You can also message me from the Schoology Learning Management System or text me at the phone number above.		
Online Face to Face Help	I am typically available throughout the week to meet with you via video-conference and answer any math questions you may have or assist you with other issues you may be having with the course. Simply email, message me through the Schoology LMS, or text me and I can often meet with you within the hour in the "Zoom Room" at the LMS.		
Availability	I check my e-mail throughout the day and make every effort to respond as soon as possible. If you do not receive a reply in a timely manner, and especially by the next business day, please send me another message or call me (I won't be offended!). I'm here to help you, and if you don't hear from me it's possible I either didn't receive your message or it accidentally got overlooked.		

Course materials and equipment:

<p>Textbook: <u>Intermediate Algebra Graphs and Models</u>, 3rd or 4th Edition, by Bittinger, Ellenbogen and Johnson. ISBN 978-0321416162 or 978-0321725554</p>		<p>Calculator: The TI-83 or 84 Plus Graphing Calculator is required for this course. DO NOT get a TI-85,86, 89, Inspire, or Casio. The color version is fine, but not necessary.</p>	
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Course Description:

- Algebra II / Intermediate Algebra uses a function approach to review and build upon elementary algebra concepts and prepare students for success in higher level math and science courses. Topics include linear, quadratic, absolute value, polynomial, rational and radical functions, as well as equations, inequalities, and graphs related to these functions.

Prerequisite: Students must have a sound understanding of Algebra I / Beginning Algebra concepts to be successful in Algebra II / Intermediate Algebra. Students who are unsure of their skill level should contact the instructor for a placement test to assess what level they will be most successful at.

Course Goals

- Solidify and extend elementary concepts of algebra within the context of functions.
- Describe functions using symbolic, graphic and numeric representations.
- Distinguish between mathematical expressions, equations and functions.
- Simplify algebraic expressions using proper mathematical form and technique.
- Solve algebraic equations and inequalities both analytically and graphically.
- Model and solve real-life situations using algebraic functions.
- Apply appropriate use of graphing technology to visualize relationships and solve problems.

Resources for Help:

- **Your Instructor:** Many students find higher level mathematics to be some of their more challenging courses and make the mistake of waiting too long to get help. As your instructor, I am your first and best resource for help! If you find yourself struggling please don't hesitate to contact me!
- **Learning Management System (LMS):** This course uses the Schoology LMS to organize and manage its resources and to facilitate the submission of course assignments. Instructions will be provided for access upon enrollment.
- **Lecture Videos and Handouts:** I have created short lecture videos explaining nearly every topic and problem type of the course. Links to these videos are included in each lesson folder at the Learning Management System (LMS). Lecture handouts specific to each video are also provided to assist students in taking good notes to facilitate their learning.
- **The Khan Academy** at <http://www.khanacademy.org/>, **HippoCampus** at <http://www.hippocampus.org/Algebra>, and **Mathispower4u** at <http://mathispower4u.yolasite.com/> offer a multitude of short video lectures on nearly every algebra concept. When you are stuck and don't know what else to do, try searching here or on YouTube for immediate help!

Grading Policy:

- **Examinations:** Regular exams will be given at the end of each chapter and will account for 50% of your grade. A comprehensive final exam will be given at the end of the course and account for an additional 20% of your grade. Exam problems are similar to those assigned as homework and as found in the selected problems. The best way to prepare for your exams is to regularly review your lecture notes, homework problems, and selected problems. Exams are closed note and closed book. One 3 x 5 card with notes of your choice will be allowed on the final exam, but NOT on the regular exams. Parents will proctor their student's exams and upload them to the appropriate dropbox in the LMS using the procedure described below.
- | | |
|--------------------------|-------------|
| Regular Exams | 50% |
| Comprehensive Final Exam | 20% |
| Lecture Notes | 10% |
| Homework | 10% |
| Selected Problems | 10% |
| Total | 100% |
- **Lecture Notes:** 10% of your grade will be awarded simply for watching the lecture videos, taking notes using the fillable lecture notes, and submitting a scanned image of them along with your other assignments to the appropriate dropbox in the Learning Management System. In order to receive credit your lecture notes must be both **neat** and **complete**. At the top of each **set** of lecture notes submitted ((i.e., just one statement for the entire set of notes submitted for each lesson folder), **the student is required to include the following statement: "I have conscientiously viewed / completed ____% of the lecture videos / notes for Lesson Folder ____"**, filling in the blanks appropriately. At the end of the syllabus is a page of these statements that can be clipped and attached instead of handwriting it. See below for instructions about how to submit assignments.
- | |
|--|
| One must learn by doing the thing;
for though you think you know it you
have no certainty, until you try.
Sophocles, c.450 BC |
|--|
- **Homework:** 10% of your grade will be determined by homework that will be submitted for each lesson folder and checked for general completeness and competency. **Please note carefully that individual problems will not be graded.** It is the student's responsibility to check his/her answers with the back of the book and contact the instructor with questions as needed. However, your understanding of the homework will be tested on the Selected Problems assignments by giving problems that are very similar to those assigned as homework. **At the top of each set of homework sections you submit for each Lesson Folder you are required to include the following statement: "I have shown all work and conscientiously completed ____% of the HW for Lesson Folder ____"**, filling in the appropriate percentage and sections. (At the end of the syllabus is a page of these statements that can be clipped and attached instead of handwriting it.) Your homework score will be based upon your self-assessment which I will validate.

- **Selected Problems:** The remaining 10% of your grade will be determined by selected problems that you will work out on paper / pencil and then scan and upload to a dropbox located in the appropriate lessons folder in the LMS. These problems will be specifically chosen to give you an idea of the most important concepts in each section, and that will help prepare you for the exams.
- **Be Neat and Organized and Communicate Effectively:** All written work should be done neatly and in a clear and organized manner. These skills are especially important in mathematics where many mistakes can be avoided simply by taking the time to be neat and organized. All Homework, Selected Problems, and Exams should be done in pencil with a good quality eraser at hand to correct mistakes. Graph paper should be used for all graphing (download for free at LMS), and a 6 inch ruler should be used for drawing straight lines. The student's goal in all written work should be to make it as easy as possible for your instructor to review, and in it to clearly communicate to your instructor your understanding of the material. Wherever applicable the student should use proper English grammar and sentence structure.

Success takes time and willingness to objectively and honestly analyze your mistakes. That's the key to getting smarter at anything in life.
William J. O'Neil
- **Electronic Submission of Assignments:** To facilitate grading of your assignments, **your work must be scanned to a single PDF file.** This can be easily done several ways, including the following:
 1. **CamScanner** is an app available for both Android and iPhones that will allow you to use the camera on a smart phone to scan your work to a pdf.
 2. Alternatively, a computer scanner can be used to accomplish the same thing. These scanners typically comes with software that will scan to a PDF file, or **cutepdf** and **scan2pdf** are free programs that can be downloaded for use with a personal scanner.
 3. A third option would be to take a good quality picture of your work and insert it into a Word document, then use the "SAVE AS..." feature to save the Word document as a PDF file.

In preparing your written work, keep in mind that you will be scanning and uploading it, so leave a half inch margin and be sure any information you wish to include is within the scanable region.
- **Course Flexibility and Due Dates:** The course has been designed to provide students and their families the flexibility that homeschooling allows. However, learning mathematics requires more effort than many other endeavors, and there is a direct correlation between a student's success in mathematics and the student's regular participation and faithful completion of requirements. In general, each Lesson Folder corresponds to approximately one week's work to complete the course in a semester, and two week's work to complete it in an academic year. It is essential that students and their families determine a deadline for the final completion of the course and establish due dates for each lesson folder according to what works best for them. Students must then pace themselves to work methodically through the course materials and adhere to their deadlines in order to complete the course in a timely manner. On the last page of the syllabus is a link for students to provide start, end, and vacation dates for the course that the instructor will use to compute and provide the student tentative due dates for each Lesson Folder.
- **A Word About Cheating Yourself In This Math Course:** Keep in mind that the goal of this course is not to just jump through an educational hoop that costs you time, money and frustration but doesn't actually benefit you. Rather, it is to prepare you for success in later math and science courses where the skills you learn here are absolutely essential. Math is very cumulative and sequential, and my experience teaching math for over 30 years is that those who do not earnestly seek to understand the concepts by doing their own work only cheat themselves, and usually don't figure that out until much later when it is too late and too difficult to remedy. If you do your work honestly your grade will be an honest reflection of what you know going forward, and will also help guide you as make life decisions based on your unique gifts.

- **Grading Scale:**

A	90-100%	D	60-69%
B	80-89%	F	below 60%
C	70-79%		

Time and Effort Expectations

- Learning mathematics is no different than most anything else of significant lasting value—there is a cost involved to obtain it. Many students fall behind in their math courses simply because they don't expend the time and effort necessary for success. Depending upon the student skill and preparation, to complete this course in a semester will on average require 10-16 hours per week, and approximately half that each week for completion over an academic year. To be most effective, time should be allocated each day, preferably at the same time, and spent on task watching the lecture videos, taking notes, reading the textbook, doing the homework, reviewing previous material, and preparing for the exams. By keeping up with your work you will find that your daily efforts pay off in a level of understanding that allows you to face exams without worry or cramming. Remember that “yard by yard, math is hard, but inch by inch, math is a cinch”!

Organize Your Life:

- A large part of success not only in this math course but in any formal educational endeavor has to do with students' ability to effectively manage all aspects of their lives (family, work, recreation, finances, health, time, relationships, etc...) in such a way as to have in place the stable “infrastructure” upon which to build their education. Learning anything new, and especially mathematics, is hard work, perhaps harder than any job you will ever have. Students who are unsuccessful most often find it is not because they are incapable of learning the coursework, but because they have not adequately allowed for the extra time and effort from their normal routine that are required for success. It is therefore important that students and their families organize their lives to allow for the time and energy commitment necessary for the successful completion of this class and their educational goals.

Carpe Diem (Seize the Day):

- Students should also keep in mind that their formal education happens during a relatively short but important time of their lives. The time you invest now becoming proficient in important skills like mathematics will be rewarded throughout your life. On the other hand, the opportunities you have now for your education will diminish with time, and things that are easier for you to learn now in your youth will become more difficult. So “seize the day” by making the most of the opportunities you have while you have them.

The only difference between the successful person and everyone else is determination and persistence.

William J. O'Neil

Work Hard and You Will Succeed!

Tentative Course Schedule (4th Edition)

(Print this Schedule For Reference Throughout the Course!)

NOTE: Each Lesson Folder corresponds to approximately one week's work to complete the course in a semester, and two week's work to complete it in an academic year. **Lesson folder due dates were emailed to students and parents upon enrollment, and those dates should be filled in on this sheet for reference throughout the course.**

"eoo" means "every other odd", i.e., 1,5,9, etc... Keep in mind that the goal of HW is to learn the concepts, not just complete an assignment. Students should do additional problems as needed for topics with which they have greater difficulty.

Lesson Folder	Due Dates	Sec	Class Topics	Assignment (4 th edition)
			Course Introduction	Work through the Getting Started folder at the LMS. Use the link on the last page of the syllabus to provide your student information for the course to the instructor.
1		1.1	Some Basics of Algebra	#37,39,43,51-59 odd, 67-81 odd
		1.2	Operations with Real Numbers	#117-129 odd, 135-143 odd
		1.3	Equivalent Algebraic Expressions	#71-77 odd, 83,85,
		1.4	Exponential and Scientific Notation	#17-33 eoo, 37-47 odd,49-113 eoo, 117-121 odd
			Chapter 1 Mid Chapter Review Optional But Recommended	All
		1.5	Graphs	#35,37,47-53 odd ,59-63 odd, 71, 73
		1.6	Solving Equations and Formulas	#21,25,37,41,45,47,49,51,63-81 odd, 93-99 odd
		1.7	Introduction to Problem Solving and Models	#13-23 odd, 35,39,41,59,61,63
			Chapter 1 Review Exercises	#1-69 odd
			Chapter 1 Test	#1-33 all
2		2.1	Functions	#1-8, 9-119 odd
		2.2	Linear Functions: Slope, Graphs, etc.	#1-6, 7-11 odd, 13-65 eoo, 31, 67-87 odd
		2.3	Another Look at Linear Graphs	#1-10, 11-17 odd, 29-33 odd, 39-45 odd, 55,57,59-101eoo
3		2.4	Intro to Curve Fitting: Point Slope Form	#1-10, 11-43 odd, 49-59 odd, (61-69 odd are optional), VFS pg 147: all.
			Chapter 2 Mid Chapter Review Optional But Recommended	All
		2.5	The Algebra of Functions	#1-6, 7-33 odd, 45-61eoo, 63-71 odd
			Chapter 2 Review	#1-10, 11-57 odd
			Chapter 2 Test	#1-32, skip 30. Problems 22 and 23 are optional.
		3.1-3.8	This chapter is taught in Beginning and College Algebra and so is not repeated here.	
4		4.1	Inequalities and Applications	#1-10, 11-43 eoo, 47-95 odd
		4.2	Solving Eqns and Inequalities by Graphing	#1-8, 9-55 odd, (57-61 odd are optional), 65-71 odd.
		4.3	Intersections, Unions, etc.	#1-10, 11-71 eoo, 57, 73-89 odd
		4.4	Absolute Value Equations and Inequalities	#1-20, 21-45 eoo,47-51 odd,53-89 eoo,91-97odd,115-123odd
			Chapter 4 Review Exercises	#1-8, 11-47 odd
			Chapter 4 Test	#1-26 all, 32
5		5.1	Intro to Polynomials and Poly Functions	#1-8, 9-41eoo,43-51eoo, 55-87odd,89-117eoo, 119-135 odd
		5.2	Multiplication of Polynomials	#1-8, 9-41eoo,43-75odd,79,81
		5.3	Polynomial Equations and Factoring	#1-14, 15-91odd, 103-117odd,121-127odd
		5.4	Trinomials of Type $x^2 + bx + c = 0$	#1-8, 9-75 odd, 79,81,83,87,91,93
6		5.5	Trinomials of Type $ax^2 + bx + c = 0$	1-8, 9-95 odd
		5.6	Perfect Square Trinomials, Diff of Squares	#1-8, 9-65 eoo, 67-107 odd
		5.7	Sums-Differences of Cubes	#1-10, 11-51 eoo
			Chapter 5 Mid Chapter Review Optional But Recommended	All
		5.8	Applications of Polynomial Equations	#1-39 odd, 59-63 odd, VFS pg 407: all
			Chapter 5 Review Exercises	#1-10, 11-71 odd
			Chapter 5 Test	#1-44 all
7		6.1	Rational Functions: Mult and Divide	#1-6, 7-99 odd
		6.2	Rational Functions: Add and Subtract	#1-8, 9-73 odd
		6.3	Complex Rational Expressions	#1-4, 5-57 odd
			Chapter 6 Mid Chapter Review Optional But Recommended	All
		6.4	Rational Equations	#1-10, 11-59 odd
8		6.5	Solving Apps Using Rational Equations	#1-6, 7-35 odd, 73
		6.6	Division of Polynomials	#1-4, 5-49 odd
		6.7	Synthetic Division	#1-6, 7-25 odd
		6.8	Formulas, Applications, and Variation	#1-12, 13-81 odd
			Chapter 6 Review Exercises	#1-10, 11-53 odd
			Chapter 6 Test	#1-30
9		7.1	Radical Expressions, Functions	#1-8, 9-113 odd
		7.2	Rational Numbers as Exponents	#1-8, 9-111 odd
		7.3	Multiplying Radical Expressions	#1-6, 7-75 odd,95
		7.4	Dividing Radical Expressions	#1-8, 9-71odd, 83

10		7.5	Expressions w/ Several Radicals	#1-6, 7-57 odd,61-93 odd
			Chapter 7 Mid Chapter Review Optional But Recommended	All
		7.6	Solving Radical Equations	#1-6, 7-53 odd, 69
		7.7	Geometric Applications	#1-6, 7-47 odd
		7.8	Complex Numbers	#1-8, 9-97 eoo
			Chapter 7 Review	#1-8, 9-61 odd
			Chapter 7 Test	#1-31
11		8.1	Quadratic Equations	#1-12, 13-79 odd, 85
		8.2	The Quadratic Formula	#1-6, 7-51 odd, 59
		8.3	Studying Solutions of Quadratic Equations	#1-6, 7-27 eoo, 29-55 odd
		8.4	Apps Involving Quadratic Equations	#1-37 odd
12		8.5	Equations Reducible to Quadratic	#1-14, 15-51 odd
			Chapter 8 Mid Chapter Review Optional But Recommended	All
		8.6	Quadratic Functions and Their Graphs	#1-14, 15-73 odd, 81
		8.7	More Graphing of Quadratics	#1-8, 9-61 odd, 69-73 odd, VFS pg 651: all
		8.8	Problem Solving and Quadratic Functions	#1-6, 7-21 odd
13		8.9	Polynomial and Rational Inequalities	#1-6, 7-55 odd
			Chapter 8 Review Exercises	#1-10, 11-37 odd, 47
			Chapter 8 Test	#1-20,22
		9.3	Logarithmic Functions	#1-8, 9-35 odd, 65-109 odd
14			Final Exam Review	See LMS
			Final Exam	See LMS

Do not worry about your difficulties in mathematics. I assure you that mine are still greater.
Albert Einstein

Tentative Course Schedule (3th Edition)

(Print this Schedule For Reference Throughout the Course!)

NOTE: Each Lesson Folder corresponds to approximately one week's work to complete the course in a semester, and two week's work to complete it in an academic year. **Lesson folder due dates were emailed to students and parents upon enrollment, and those dates should be filled in on this sheet for reference throughout the course.**

"eoo" means "every other odd", i.e., 1,5,9, etc... Keep in mind that the goal of HW is to learn the concepts, not just complete an assignment. Students should do additional problems as needed for topics with which they have greater difficulty.

Lesson Folder	Due Dates	Sec	Class Topics	Assignment (3 rd edition)
			Course Introduction	Work through the Getting Started folder at the LMS. Use the link on the last page of the syllabus to provide your student information for the course to the instructor.
1		1.1	Some Basics of Algebra	#11-27 eoo, 39-73 odd
		1.2	Operations with Real Numbers	#119-135 odd
		1.3	Equivalent Algebraic Expressions	#57-75 odd
		1.4	Exponential and Scientific Notation	#17-33 eoo, 35-59 odd, 67-109 odd
		1.5	Graphs	#23,27, 37-51 odd, 61,63
		1.6	Solving Equations and Formulas	#17-49 eoo, 51, 61-79 odd, 89-93 odd
		1.7	Introduction to Problem Solving and Models	#1-15 odd, 23,27,29,48,51,52. VTG pg 85 all.
			Chapter 1 Review Exercises	#1-71 odd
			Chapter 1 Test	#1-36 all
2		2.1	Functions	#1-8, 9-81 odd, 93 odd
		2.2	Linear Functions: Slope, Graphs, etc.	#1-6, 7-31 odd, 33-49 eoo, 53-89 odd, 99, 105-109 odd
		2.3	Another Look at Linear Graphs	#1-10, 11-17 odd, 21, 29-33 odd, 39-45 odd, 55,57,59-93eoo
3		2.4	Intro to Curve Fitting: Point Slope Form	#1-10, 11-43 odd, 49-59 odd, (61-69 odd are optional), 89,91, VTG pg 156: all.
		2.5	The Algebra of Functions	#1-6, 7-29 odd, 41, 43-55 eoo, 59-67 odd,73,75
			Chapter 2 Review	#1-10, 11-57 odd
			Chapter 2 Test	#1-23,25-26. Problem 21 is optional.
		3.1-3.8	This chapter is taught in Beginning and College Algebra and so is not repeated here.	
4		4.1	Inequalities and Applications	#1-10, 13-41 eoo, 43-75 odd, 81
		4.2	Solving Eqns and Inequalities by Graphing	#1-8, 9-57 odd, (59-63 odd are optional), 73.
		4.3	Intersections, Unions, etc.	#1-10, 13-73 eoo, 75-83 odd
		4.4	Absolute Value Equations and Inequalities	#1-14, 15-47 eoo,49-89 eoo,91-97odd,113-123 odd
			Chapter 4 Review Exercises	#1-8, 11-47 odd
			Chapter 4 Test	#1-26 all, 31
5		5.1	Intro to Polynomials and Poly Functions	#1-10, 13-37 eoo,47-63 odd, 65-89 eoo, 93-111 odd,133
		5.2	Multiplication of Polynomials	#1-8, 9-37eoo,41-75odd,79
		5.3	Polynomial Equations and Factoring	#1-8, 9-97 odd, 103-109 odd
		5.4	Trinomials of Type $x^2 + bx + c = 0$	#1-8, 9-73 odd, 87, 91,93
6		5.5	Trinomials of Type $ax^2 + bx + c = 0$	1-8, 9-89 odd, 93,95
		5.6	Perfect Square Trinomials, Diff of Squares	#1-10, 11-51 eoo, 53-97 odd, 103-109 odd
		5.7	Sums-Differences of Cubes	#1-10, 11-51 eoo
		5.8	Applications of Polynomial Equations	#1-27 odd, 49, VTG pg 423: all
			Chapter 5 Review Exercises	#1-10, 11-69 odd
			Chapter 5 Test	#1-41 all
7		6.1	Rational Functions: Mult and Divide	#1-10, 11-99 odd, VTG pg 448 #1-6,9
		6.2	Rational Functions: Add and Subtract	#1-8, 9-71 odd
		6.3	Complex Rational Expressions	#1-6, 7-49 odd
		6.4	Rational Equations	#1-10, 13-57 odd
8		6.5	Solving Apps Using Rational Equations	#1-37 odd, 49
		6.6	Division of Polynomials	#1-6, 7-45 odd
		6.7	Synthetic Division	#1-8, 9-27 odd
		6.8	Formulas, Applications, and Variation	#1-10, 11-79 odd
			Chapter 6 Review Exercises	#1-10, 11-49 odd
			Chapter 6 Test	#1-27, 29
9		7.1	Radical Expressions, Functions	#1-8, 9-113 odd, VTG pg 541 all
		7.2	Rational Numbers as Exponents	#1-8, 9-111 odd
		7.3	Multiplying Radical Expressions	#1-6, 7-75 odd,95
		7.4	Dividing Radical Expressions	#1-8, 9-71odd, 83
10		7.5	Expressions w/ Several Radicals	#1-6, 7-57 odd,61-93 odd
		7.6	Solving Radical Equations	#1-6, 7-53 odd, 69
		7.7	Geometric Applications	#1-6, 7-47 odd
		7.8	Complex Numbers	#1-8, 9-97 eoo
			Chapter 7 Review	#1-8, 9-57 odd,58
			Chapter 7 Test	#1-29

11		8.1	Quadratic Equations	#1-12, 13-69 odd, 77,79
		8.2	The Quadratic Formula	#1-6, 7-49 odd
		8.3	Apps Involving Quadratic Equations	#1-35 odd
		8.4	Studying Solutions of Quadratic Equations	#1-6, 7-27 eoo, 29-55 odd
12		8.5	Equations Reducible to Quadratic	#1-8, 9-41 odd
		8.6	Quadratic Functions and Their Graphs	#1-14, 15-65 odd, 73
		8.7	More Graphing of Quadratics	#1-8, 9-59 odd, 69, VTG pg 665: all
		8.8	Problem Solving and Quadratic Functions	#1-6, 7-21 odd
13		8.9	Polynomial and Rational Inequalities	#1-8, 9-57 odd
			Chapter 8 Review Exercises	#1-10, 11-37 odd, 47
			Chapter 8 Test	#1-20,22
		9.3	Logarithmic Functions	#1-8, 9-35 odd, 65-107 odd
14			Final Exam Review	See LMS
			Final Exam	See LMS

Syllabus Acknowledgment and Student Information

Note: Please click [here](#) to quickly and easily provide this important information for the course online (you may need to hold down the control key, or right click and select "Open in a new tab...").

I acknowledge that I have read and understand the contents of the syllabus.

Signature

Date

Name (printed legibly)

Fill Out Online by Clicking the Link Above!

Contact Information

Please complete the following so Clark will have a way of contacting you outside of class if needed:

Name _____

E-mail _____

Phone Number _____

Street Address _____

City _____ State _____ Zip _____