# PROGRAMMING LOGIC
## PRG 105-   Section: 005

**Credit Hours:** 3.00 **Lab Hours:** 2.00 **Lecture Hours:**   2.00
**Semester: Fall 2017** **Course Begins: 8/21/17** **Course Ends: 12/13/17**
**Days: Monday, Wednesday** **Times: 6 p.m. to 7:50 p.m.**
**Room: E104**

**Instructor:** David Durbin
**E-mail:** DDurbin@mchenry.edu
**Phone:** (815) 455-8732
**Office Hours:** Before and after class.
**Office Location:**   A124
**Other Contact Information:** Canvas direct message.

**Required Course:**

 **Textbook(s):**

 Starting Out with Python 4th edition by Tony Gaddis – Online access provided.
 https://www.pearsonmylabandmastering.com/northamerica/myprogramminglab/

 **Supplies:**

 Mac or PC running a current operating system (Windows 7 or newer/Mac OS 10)

 Headphones

**Supplemental Materials: (These are <u>optional</u>.)**

A **LEGAL** copy of Minecraft for your operating system.

Learn to Program with Minecraft[®] Transform your World with the Power of Python
 by Craig Richardson.  Web links where you can buy the e-book version will be provided in class or you can check either Amazon or Barns and Noble for this book.

**Course Description:**
Programming Logic introduces core programming concepts including: sequence, iteration, decision statements, data types, accessing and storing data, classes and objects. Students plan and create programs using modern planning tools and the Python programming language. This course will prepare students for advanced object oriented programming coursework.

**Course Prerequisite:** Students must test into MAT 095 (or higher) and ENG 095 (or higher) on placement tests.

**Section Notes:**

PLAN AHEAD!  The work for this class often takes at least as much time outside of class as we spend in class each week; figure that it may take anywhere from **4-8 per week.**  This is particularly true for later in the course when we get to more difficult assignments and the final project.  Remember that things may go wrong or not work as intended, and you may need help. Do **NOT** wait until the due date to start your homework; if you need to contact me it may take 24 hours or more to get back to you with an answer!

**Course Objectives:**

1. Use structured programming techniques (Sequence, Selection, Iteration) to solve problems
2. Plan programs using logic tools
3. Define key programming terms
4. Use variables to hold a variety of data
5. Debug programs
6. Create functions that use parameters
7. Work with different data sources
8. Write simple programs implementing Classes and Objects
9. Use comments to document program functions

**Course Outline**
I. Computer programming and logic
    A. Programming Languages
    B. Writing a program
    C. Compilers vs. Interpreters
    D. Debugging
II. Variables, expressions, and statements
    A. Variables
    B. Operators
    C. Strings
    D. Expressions and statements
    E. Comments
III. Functions
    A. Calling Functions
    B. Type Conversion
    C. Math Functions
    D. Parameters, arguments, variables
    E. Stack diagrams
    F. Importing
IV. Conditionals and recursion
    A. Modulus operator
        i. Boolean expressions
        ii. Logical operators
        iii. Conditionals
        iv. Nested Conditionals
V. Advanced functions
    A. Returning values
    B. Boolean functions
    C. Recursion in functions
VI. Strings
    A. Working with
    B. Searching
    C. String methods
    D. String comparison
VII. Lists
    A. Operations

        B. Methods
        C. Objects and Values
        D. Aliasing
VIII.    Dictionaries and Tuples
        A. Counters
        B. Looping
        C. Memos
        D. Global Variables
  IX.    Data Management
        A. Files
        B. Database Access
  X.    Classes and Objects
        A. User defined types
        B. Attributes
        C. Instances
        D. Class diagrams

## Assignments and Grading Criteria

90% -100% = A
80% - 89% = B
70% - 79% = C
60% - 69% = D
 0% - 59% = F

Final Grades are determined by the following percentages:
Projects: 50% (Original programs, including video and code submission.)
Exams: 40% (Midterm (20%) and Final Project (20%).)
Attendance/Participation: 10%

## Policies

**Attendance policy:** Attendance is expected of all students in all classes. Should you need to miss a class please contact me via e-mail or Canvas message before class begins. I understand that emergencies do happen and that northern Illinois has weather that does not always make for safe traveling conditions.

**Late work/make-up work policy:** Late work will be accepted up to five (5) days after the listed due date but the submitted work will lose 10% of the possible points *each day* after the due date. (-10% for 1 day late, -20% for 2 days late, up to -50% for 5 days late; remember, even losing 50% of the points is better than a zero!) Any work submitted after the fifth day without prior arrangements having been made will receive a zero.
For this class the last day you have to submit work for late credit is the Friday after the due date.

**Cell Phone policy:** Use of cell phones / smart phones / smart watches/ mobile devices and hands-free devices are not permitted during class lectures. Please *silence* all such devices **before** class beings. If you need to make or reply to a phone call during class, please go into the hallway to do so. Please do not send or reply to text messages during lectures. All mobile devices need to be put away during exams. Likewise please do not wear headphones during lectures.

**Contacting the Instructor:** The best way to reach me is either via Canvas message or by sending an e-mail to the e-mail address listed at the top of the syllabus. Canvas messages usually forward to my work e-mail (again, listed at the top of the syllabus), so I will see them either way. NOTE: I do NOT reply to messages received *after* 10 p.m. until the next day. I check my e-mail multiple times per day and try to make a habit of checking at least once between 9:30 and 10 p.m. If you need to get in touch with me urgently, you need to send the message before 9:30 to ensure I receive it before 10 p.m.

**Class Cancelation:** There may be times when class is canceled either by the instructor or by the college. *If possible* the college will attempt to contact students at the phone number or e-mail they have on file with the college. Notifications for cancelations due to weather or other emergencies will be posted at mchenry.edu or through the campus alert system. (www.getrave.com/login/mchenry) In many cases a sign will be posted in the window next to the classroom door that class was canceled. If I need to cancel class I will try to send out a Canvas message at least 1 hour before class starts, so I **strongly** suggest that you check Canvas before coming to class if possible.

Please note: **IF** the Chicago Cubs or the White Sox go to the World Series **AND** the series goes to game 7 **AND** game 7 is on a night when we have class, there will be no class that night.

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## Weekly Course Schedule

Work for this class is due on Sunday night at 11:59 p.m. Work submitting at or after 12:01 a.m. Monday is considered late.

| Dates of Class Meetings | Course Schedule |
|---|---|
| Week #1<br><br>Aug. 21st & 23rd | Getting Started:<br>Set up student e-mails, pycharm, install Python, Accessing the digital book, snagit, set up GitHub accounts.<br><br>Hello World! |
| Week #2<br><br>Aug. 28th & 30th | Input and Output, Printing to the Screen, simple variables. |
| Week #3<br><br>Sept. 4th & 6th | Sept. 4th – COLLEGE CLOSED FOR LABOR DAY<br><br>More variables, Madlibs. |

| | |
|---|---|
| Week #4<br><br>Sept. 11th & 13th | Conditional Statements (If-Else), Repetition Statements, Boolean Logic (AND OR) |
| Week #5<br><br>Sept. 18th & 20th | More Conditionals<br><br>Being Functions |
| Week #6<br><br>Sept. 25th & 27th | Functions |
| Week #7<br><br>Oct. 2nd & 4th | Lists and Tuples |
| Week #8<br><br>Oct. 9th & 11th | MIDTERM WEEK |
| Week #9<br><br>Oct. 16th & 18th | Files and Exceptions |
| Week #10<br><br>Oct. 23rd & 25th | Strings, Dictionaries and Sets<br><br>Begin Final Project |
| Week #11<br><br>Oct. 30th & Nov. 1st | Classes and Objects-Oriented Programming |
| Week #12<br><br>Nov. 6th & 8th | Object Inheritance |
| Week #13<br><br>Nov. 13th & 15th | More OOP |
| Week #14<br><br>Nov. 20th & 22nd | Recursion<br><br>Nov. 22nd – College closed for Thanksgiving. |
| Week #15<br><br>Nov. 27th & 29th | GUI Programming |

| Week #16 | Work on Final Projects; NO CLASS. |
|---|---|
| Dec. 4<sup>th</sup> & 6<sup>th</sup> | **Final Projects are due December 11<sup>th</sup> at 10 p.m.** I will accept them 1 day late but they will lose 20% of the possible points. No work will be accepted for grading after 11:59 p.m. December 12<sup>th</sup>. |

## Teaching Schedule
The scheduling of the activities and teaching strategies on this syllabus, but not the objectives or content, may be altered at any time at the discretion of the instructor.

**Withdrawals:** The last day to drop this course is **November 15<sup>th</sup> (11/15/17)!** Failure to attend class does not constitute official withdrawal. If students are considering a withdrawal, they should consult directly with the instructor and an academic advisor. Students may withdraw from a class through the Registration Office, either in person or by fax: (815) 455-3766. In their request, students should include their name, student ID number, course prefix, number and section, course title, instructor, the reason for withdrawing, and their signature. Withdrawal from a course will not be accepted over the telephone.

## Academic Support for Special Populations Students

**Students with Disabilities:**
It is the policy and practice of McHenry County College to create inclusive learning environments. If you are a student with a disability that qualifies under the American with Disabilities Act – Amended (ADAA) and require accommodations, please contact the Access and Disability Services office for information on appropriate policies and procedures for receiving accommodations and support. Disabilities covered by ADAA may include learning, psychiatric, and physical disabilities, or chronic health disorders. Students should contact the Access and Disability Services office if they are not certain whether a medical condition/disability qualifies. To receive accommodations, students must make a formal request and must supply documentation from a qualified professional to support that request. However, you do not need to have your documentation in hand for our first meeting. Students who believe they qualify must contact the Access and Disability Services office to begin the accommodation process. All discussions remain confidential. The Access and Disability Services office is located in Room A260 in A Building in the Atrium. To schedule an appointment to speak with the manager, please call (815) 455-8766. Information about disabilities services at MCC can be found at: **www.mchenry.edu/access**

**Students in Career/Technical Programs**

As a student enrolled in a career or technical education program at McHenry County College, you may be eligible for services and assistance under the Carl D. Perkins III Grant. Grant funds are used, in part, to assist students who are at risk of not succeeding in their educational pursuits. The traits that often prevent students from succeeding are: economic disadvantage, academic disadvantage, disability/disabilities, single parent, displaced homemaker, enrollment in a program in which their gender is under represented, and limited English proficiency (LEP). The definitions of each trait are available in the Access and Disability Services office. Students with one or more of these traits are referred to as **Perkins Special**

**Populations Students.**

If you would like to know if you are eligible for services at any time during the semester, please do not hesitate to contact the Manager, Access and Disability Services. The office is Room A260, and phone number is (815) 455-8676.

**Additional syllabus information and resources can be found at www.mchenry.edu/syllabusinfo.**

# STUDENTS ARE RESPONSIBLE FOR KNOWING ALL SYLLABUS INFORMATION.