# Course Outline - SRH Introductory Java

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\*\*\* PRIOR TO FIRST CLASS \*\*\*

NETBEANS 6.0 must be installed on student’s computer.

JDK 6u3 with NetBeans IDE 6.0 Bundle available from SRH Java Sharepoint Site

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| WEEK 1 – 15 Jan 08 JB | Course Overview  * Class organization & structure * Importance of Java * Java & AWIPS * Assignment Goals   Teach Object Oriented Prgm  Create GIS program   Chapter 1  * Java Fundamentals * Bytecode * Object Oriented Overview * Basic Java Syntax * Keywords & Identifiers * if statements & for loops  Introduction to the IDE  * Creating projects and classes * Compiling programs * Examples of code completion * Examples of commenting code * Code reformatting * Using IDE to search through code * Brace tracing * Fix Imports function * Create Class using IDE template | **READINGS**  Chapter 1  [Netbeans Overview](http://www.netbeans.org/download/flash/netbeans_55/nb_overview/NetBeansOverview.html)  [Netbeans Quickstart Guide](http://www.netbeans.org/kb/55/quickstart.html)  **HOMEWORK**  Familiarization with IDE |
| WEEK 2 – 22 Jan 08 EH | Chapter 2  * Primitive Types * Literals * Operators * Variables   Assignment  Initialization (Dynamic)  Scope  Type Conversion & Casting Chapter 3  * **if** – **else if** – **else** * **switch** * **for** loop * **while** loop * **do-while** loop * **break** & **continue** | **READINGS**  Chapter 2  Chapter 3  **HOMEWORK**  Layout needs for a GIS point  GIS line  GIS polygon  Think of the object relationships |
| WEEK 3 – 29 Jan 08 JB | Chapter 4  * The Jargon:   Class, Method, Object, Instance Vars   * Generalized Class   Defining a class  Variables within a class  The dot operator (.)  Using **this** keyword  Constructors (**new**)  Methods   * Parameterized Methods & Constructors | **READINGS**  Chapter 4  **HOMEWORK**  Create Objects  Point  Line  Polygon |
| WEEK 4 – 5 Feb 08 EH | Chapter 4  * Review Material & Questions * Garbage Collection  Chapter 5  * Arrays   Using array methods  **length()**   * for loop (Collections Framework)   **for-each**  optimized **for** loop   * Strings   Using string methods  **length()**  **charAt(int index)**  **indexOf(String str)**  **equals(String str)** | **READINGS**  Chapter 4 (Review)  Chapter 5 (5.1-5.8)  **HOMEWORK**  Iterating over polygons |
| WEEK 5 – 12 Feb 08 EH | Chapter 6  * Encapsulation   Access Control to Class Members  **public**, **private**, **protected**   * Passing Objects to methods * Returning Objects from methods * Method Overloading * Constructor Overloading * **static**   variables, methods, blocks   * Nested and Inner classes | **READINGS**  Chapter 6 (6.1-6.5, 6.7-6.8)  **HOMEWORK**  TBD |
| WEEK 6 – 19 Feb 08 JB | Chapter 7 Inheritance   * Member Access * Constructors & inheritance   Superclass Constructors – **super()**  Access Superclass Members **– super**   * Inheritance Example * Method Overriding * The Object Class – superclass of all others * Introduction to Abstract Classes * Using **final** | **READINGS**  Chapter 7  **HOMEWORK**  TBD |

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| WEEK 7 – 26 Feb 08 JB | Observer Design PatternsChapter 8  * Packages   Defining packages  Using packages  Importing packages   * Interfaces   Implementing  Extending   * Adding Libraries | **READINGS**  Chapter 8  **HOMEWORK**  Use GEOTOOLS |
| WEEK 8 – 04 Mar 08 JB | ReviewComposite Design PatternsConcept Tie Together | **READINGS**  TBD  **HOMEWORK**  TBD |
| WEEK 9 – 11 Mar 08 EH | Chapter 9  * Exception Hierarchy * **try**, **catch**, **throw**, **throws**, **finally** * Uncaught Exceptions * Throwing Exceptions * Catching Exceptions * Stack Traces * Creating Exception Subclasses  Chapter 10  * Byte & Character Streams * Reading from   STDIN  File   * Writing to file * Random Access Read/Write * Network reading | **READINGS**  Chapter 9  Chapter 10 (10.1-10.11)  **HOMEWORK**  TBD |
| WEEK 10 – 18 Mar 08 EH | Chapter 10  * Java Type Wrappers (10.12, 12.6)  Chapter 11  * Multithreading Fundamentals  Chapter 13  * Benefits of Generics  Java’s Documentation CommentsCollections Framework | **READINGS**  Chapter 10 (10.12)  Chapter 11 (11.1, 11.2)  Chapter 12 (12.6)  Chapter 13 (13.1, 13.2)  Appendix B (655-663)  **HOMEWORK**  TBD |

## Additional Class Instructions:

None at present time.