

Programming in PHP

X52.9224.001.FA04 -- Fall 2004

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Overview

This course is an introduction to the PHP programming language. Topics include installation and configuration with the Apache http server, variables and data types, language syntax, control structures, functions, strategies and tools for handling input and generating output, error handling, sending email, manipulating dates and times, string manipulation and regular expressions, SQL and MySQL database access, object oriented programming (OOP), templating with Smarty, and using packages from the PHP Extension and Application Repository (PEAR) . Though primarily focused on PHP 4.x, the course will also take note of new features in PHP 5. We will emphasize security and sound coding practices throughout.

Objectives

After completion of this course, students will: know how to write and understand PHP code, and use it to build dynamic web pages; be able to install and configure third-party PHP packages; be ready to further their knowledge of web application development with PHP in subsequent, more advanced classes.

Prerequisites and Requirements

Thorough familiarity with HTML is the sole prerequisite.

While it is not impossible to rely solely on NYU/SCPS' computing facilities, it is strongly recommended that students have their own computers with reliable Internet connections.

PHP itself, the Apache web server, and the MySQL database server are all open source products available for download free of charge. The recommended Apache/MySQL/PHP distribution is XAMPP (<http://www.apachefriends.org/en/xampp.html>)

Students are also strongly encouraged to install any of the many competent PHP-aware text editors or integrated development environments (IDEs) available for their platform.

Course Materials

There is no required textbook; all the material to be covered in class is available from various free online sources. Students are nevertheless encouraged to own at least one good hardcopy reference such as:

- *Programming PHP*. Rasmus Lerdorf, Kevin Tatroe. (O'Reilly, ISBN 1565926102)
- *Learning PHP 5*. David Sklar (O'Reilly, ISBN 0596005601)
- *Core PHP Programming*. Leon Atkinson (Prentice Hall, ISBN 0130463469)

The Sklar book is the most beginner friendly (it's also the funniest, and we all know humor is an all-important criterion in evaluating technical writing.) *Core PHP Programming* is newer than *Programming PHP* and covers PHP 5. On the other hand *Programming PHP* has near-biblical authority, IMHO, since Rasmus is the very guy that got this whole PHP thing started.

Each week's assignment will be accompanied by recommended reading from the above and/or online sources.

Grading Policies

There will be 10 homework assignments worth 10 points each: 9 weekly assignments, due at sessions 2 through 9, and 2 assignments due at session 10. The 10th and final homework assignment will be a mini PHP/web application designed and built by the student over the course of the class.

Each of the 10 assignments will be worth 10 points. The assignments will be evaluated on these criteria: problem solving (does it work? is it elegant and efficient?), and coding style (is it readable? are there comments to aid the reader?).

Assignments will be handed in the old fashioned way: on a floppy diskette (or CD) at the beginning of the class on the week in which it is due. Please don't email your assignments. Late assignments will not be accepted.

Syllabus

Session 1	What is PHP? History of web programming; how PHP fits into the web environment; installation and configuration; "Hello World"; syntax, variables, operators, flow control structures
Session 2	More language basics; using GET and POST input, working with HTML forms; built-in and user-defined functions; variable scope; using the PHP manual, getting help

Session 3	Input validation, string manipulation and regular expression functions; date and time functions
Session 4	code re-use, require(), include(), and the include_path; filesystem functions and file input and output; file uploads; error handling and logging; sending mail
Session 5	HTTP headers and output control functions; HTTP cookies; maintaining state with HTTP sessions; writing simple web clients
Session 6	Introducing MySQL; database design concepts; the Structured Query Language (SQL); communicating with a MySQL backend via the PHP MySQL API
Session 7	More MySQL database access; graphic manipulation with the GD library
Session 8	Introduction to Object Oriented Programming; Using PEAR packages
Session 9	More PEAR packages; more OOP; the Smarty template engine
Session 10	parsing XML; PHP 5-specific features