Statistical Hydrology

1. **Course number and name:** 020HYSGS5 Statistical Hydrology

2. **Credits and contact hours:** 4 ECTS credits, 2x1.25 hours

3. **Name(s) of instructor(s) or course coordinator(s):** Cynthia ANDRAOS

4. **Instructional Materials:**

   a.   Ven Te Chow, Maidment and Mays, *Applied Hydrology,* McGRAW-Hill

   b.   Class Notes prepared by Wajdi NAJEM

5. **Specific course information**
   a. **Catalog description:** Provide the necessary elements to: determine and fit probability distributions and models to univariate and multivariate hydrologic variables, perform statistical tests and frequency analysis, select extreme value distributions and estimate probable maximum or minimum events (precipitation, droughts and floods).

   b. **Prerequisites or co-requisites:** 020STAGS2 Statistics

   c. **Required:** Required course for Water and Environment Specialty students

6. **Educational objectives for the course**
   a. **Specific outcomes of instruction:**
   By the end of the course, the students will be able to:
   - Introduce the students to the concepts of probabilistic treatment of hydrological variables
   - Develop the background needed for performing frequency analysis
   - Present to students the needed methods to evaluate probable maximum events
   - Familiarize students with flood forecasting
   - Enhance the students' writing and oral presentation skills
   b. **PI addressed by the course:**

PI	1.1	2.2	6.3
Covered	yes	yes	yes
Assessed			

7. **Brief list of topics to be covered:**
   a. Statistical analysis of hydrologic data

b. Extreme value distributions
c. Correlation and regression analysis
d. Statistical tests in hydrology
e. Frequency analysis
f. Flood forecasting