



First Year Doctoral Program Form

LAST NAME	Raparelli
NAME	Edoardo
CURRICULUM	Radar and Remote Sensing
DOCTORAL CYCLE	XXXIV

The Doctoral Program Form contains, year by year, the description of the PhD program of each Doctoral student. This form must be submitted to the PhD coordinator with roughly the following timing:

- o by the end of February of the first year for first year students
- o before the admission to the second year by perspective second year students
- o before the admission to the third year by perspective third year students

The Doctoral Program Proposal is approved by the PhD board shortly after submission. The Doctoral Program requirements place formalized emphasis on methodology and mastery of fundamental and applied engineering systems concepts. A Doctoral Program Proposal should be constructed in agreement with the Faculty mentor, that is the supervisor or tutor, by complying to the requirements, described in the Tables below.

ADVANCED COURSES: 12 CREDIT FORMATION UNITS (CFU)¹

Only courses/schools providing a final verification test with pass/fail outcome certified by instructor can be included here.

Title	Type	Duration / period	CFU ²	Motivation for selection
Electromagnetism and Radar Meteorology	Master Course	48 hours of lectures / second year (first semester)	6	The course will permit to understand how to apply Radar technology for the remote sensing of snow cover properties.
Radar Earth Observation	Master Course	48 hours of lectures / second year (second semester)	6	The course will permit to understand how to retrieve the properties of the snow cover from Satellite observations.
Total CFU			12	

SEMINARS AND LABORATORY ACTIVITIES: 6 CFU³

Activity	Type	Duration / period	CFU ⁴	Motivation for selection
CETEMPS seminars	Seminars	2 hours every thursday	6	The seminars held at CETEMPS concern meteorology and climatology topics which are treated in research and operational aspect. They always provide useful information to further improve the chosen PhD research topic.
Total CFU			6	

¹Please insert lines as required/appropriate, and for each line complete each column of the Table.

²Indicate here the CFUs that can be accounted for as a result of the successful completion of the activity; for Master Degree courses, assume 1 CFU = 8 teaching hours + 12 homework/study hours, for a total of 20 hours. This rule can be slightly adjusted for other types of courses/activities (e.g., PhD courses may require slightly less hours per CFU)

³Please insert lines as required/appropriate, and for each line complete each column of the Table.

⁴Indicate here the CFUs that can be accounted for as a result of the successful completion of the activity; as a rule of thumb, assume 1 CFU = 20 working hours.

ADDITIONAL INDEPENDENT FORMATION AND RESEARCH ACTIVITIES: 6 CFU⁵


Indicate activities that extend and complement the mandatory activities listed above

Activity	Type	Duration / period	CFU ⁶	Motivation for selection
Object Oriented Programming	Bachelor Course	48 hours of lectures / first year (second semester)	6	The course will give solid basis to develop robust script to handle and analyse measured and modeled properties of the snow cover.
Total CFU			6	

RESEARCH ACTIVITY: 36 CFU

Research area	Radar and Remote Sensing.
Research topic	Investigation of desert dust impacts on snow metamorphism through numerical models and high-resolution radiometric data.
Framework of the proposed research topic	The Weather Research and Forecasting Model (WRF) will be used to initialize the numerical model SNOWPACK to simulate the physical properties of the snow cover on the central Italy domain. The performances of the model chain will be checked through satellite observations and in situ measurements of the snow cover for relevant case studies.
Research environment	The chosen PhD research topic involves the University of Roma Sapienza, the center of excellence CETEMPS (L'Aquila) and the institute for Snow and Avalanche Research SLF (Davos, Switzerland).

FACULTY MENTOR (TUTOR OR SUPERVISOR)

Prof. Dr.	Frank S. Marzano
Supervisor signature for approval	

Signature of Doctoral student

Date



01/03/2019

⁵Please insert lines as required/appropriate, and for each line complete each column of the Table.⁶Indicate here the CFUs that can be accounted for as a result of the successful completion of the activity; as a rule of thumb, assume 1 CFU = 20 working hours.