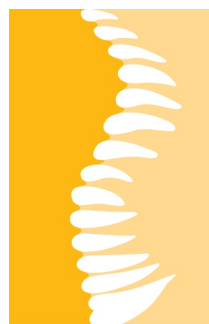


# ICP STRATEGY FOR THE PROFESSIONAL DEVELOPMENT OF RESEARCHERS



**ICP<sup>R</sup>**

Institut Català de Paleontologia  
Miquel Crusafont

**December 2019**



HR EXCELLENCE IN RESEARCH



---

# ICP STRATEGY FOR THE PROFESSIONAL DEVELOPMENT OF RESEARCHERS

INSTITUT CATALÀ DE PALEONTOLOGIA MIQUEL CRUSAFONT



© Institut Català de Paleontologia Miquel Crusafont 2019

Institut Català de Paleontologia Miquel Crusafont (ICP), Universitat Autònoma de Barcelona.  
Edifici ICTA-ICP, c/ Columnes s/n, Campus de la UAB, 08193 Cerdanyola del Vallès, Barcelona.

*This document is available to use under the Creative Commons Attribution-NonCommercial-NoDerivs (CC-BY-NC-ND) license <https://creativecommons.org/licenses/by-nc-nd/4.0/>*

---



## INDEX

INDEX .....	p. 1
INTRODUCTION	
The ICP .....	p. 3
ICP research .....	p. 3
Career development and research independence .....	p. 4
Aims and scope .....	p. 5
APPLICABLE PRINCIPLES AND CONCEPTS	
European Framework for Research Careers .....	p. 7
UAB Professional Development Programme for Researchers .....	p. 9
European Charter & Code for Researchers .....	p. 13
ICP STRATEGY FOR RESEARCH CAREER DEVELOPMENT	
Career development in recruitment .....	p. 17
Researcher professional categories .....	p. 17
Types of contracts for researchers .....	p. 23
Required skills at various research career stages .....	p. 25
Researcher career path at the ICP .....	p. 27
Mobility .....	p. 35
Teaching .....	p. 36
Mentoring and supervision .....	p. 37
Leadership .....	p. 39
Continuous training .....	p. 39
LITERATURE CITED .....	p. 41
FINAL NOTE .....	p. 43



## INTRODUCTION

**The ICP.** The Institut Català de Paleontologia Miquel Crusafont (ICP) is a non-profit institution devoted to research in vertebrate paleontology as well as the conservation and dissemination of paleontological heritage at the highest international level. The ICP is established as a public foundation whose Board of Trustees is composed by the Generalitat de Catalunya and the Universitat Autònoma de Barcelona (UAB). The ICP is also part of i-CERCA (Institució CERCA – Centres de Recerca de Catalunya, Generalitat de Catalunya), and linked to the UAB as a university research center.

**ICP research.** Research may be defined as “the quest for knowledge obtained through systematic study and thinking, observation and experimentation” (ALLEA, 2017, p. 3). Other possible definitions seek to expand this concept by further including development, i.e., research and experimental development (R&D), which can be defined as “creative and systematic work undertaken in order to increase the stock of knowledge [...] and to devise new applications of available knowledge” (OECD, 2015: p. 44). In turn, researchers are defined as “professionals engaged in the conception or creation of new knowledge” by means of conducting research (including data collection and analysis, hypothesis testing, and publishing papers), whereas technicians are defined as “persons whose main tasks require technical knowledge and experience” and who “participate in R&D by performing scientific and technical tasks involving the application of concepts and operational methods and the use of research equipment, normally under the supervision of researchers” (OECD, 2015: pp. 162-164).

The research performed at the ICP is organized around various formally-established research groups, as well as several technical areas of research support and service provision, which are coordinated with one another by the director of the ICP. Research groups include researchers at different career stages, and sometimes also technicians, which have common scientific aims and lines of research. Each research group is led, from both intellectual and managerial viewpoints, by a senior researcher (the head or leader of the research group). The scientific aims of each research group are defined by its group leader and the director of the ICP. In particular, the director of the ICP dictates the scientific policy of the institution, whereas each group leader executes such a policy by planning, leading and performing research within the framework of the aims and research lines of the group. Although some ICP technicians may be directly integrated to a particular research group, most of them are linked to a particular area of research support. The director of the ICP is the ultimate responsible

to ensure the coordination between the various research groups and research support areas.

**Career development and research independence.** In general terms, ‘career development’ may be defined as “the lifelong process of managing learning, work, leisure, and transitions in order to move forward a personally determined and evolving preferred future”, including not only “how individuals manage their career within and between organizations”, but also “how organizations structure the career progress of their members” (Wikipedia contributions, 2019). In the framework of academia, “[c]areer development is about moving forward to a fully independent position as a researcher” (Díaz et al., 2018). Research freedom is one of the basic principles recognized at the ICP. According to it, researchers are free to decide the research questions they wish to devote—as long as they are in agreement with the mission of the ICP as defined on its statutes (i.e., research in vertebrate paleontology as well as conservation and dissemination of paleontological heritage), and also with the relevant ethical principles and current laws. Research freedom is further constrained by the need to comply with the scientific policies implemented by the ICP Director to fulfill the center’s mission, as well the more specific research lines determined by research group leaders, principal investigators, and PhD or postdoc supervisors, depending on the general aims and scope of each research group as well as its current research projects and grants. This means that researchers must perform their research within a given scope and organizational framework, which constrains their possibilities to freely choose their specific research aims. A different (but related) concept is research independence: career development implies that researchers are expected to progressively attain a greater independence and, concomitantly, higher levels of research freedom. Both research independence and freedom must be regarded as genuinely desirable aspirations of any researcher.

Planning is essential to develop a successful career as a researcher, and ideally it should already begin at early career stages (predoctoral and postdoctoral researchers; Díaz et al., 2018). Furthermore, researchers at any career stage need to have continuous training and professional development opportunities, in order to improve their career development prospects. This not only implies updating research competences and knowledge in the specific field of knowledge of researchers, but further involves the acquisition of transferable skills (such as communication skills or problem-solving abilities, among others) that prepare them for their future career in different work environments, either inside or outside academia (OECD, 2012; Díaz et al., 2018). It is important to recognize that such skills are acquired not only by means of formal academic training, but also through a combination of extracurricular



activities that include scientific work, networking, teaching and leadership (Eurodoc, 2011). Under a suitable supervision and guidance, the performance of research activities, particularly for early stage researchers in training, should lead to the progressive acquisition of the aforementioned competences and skills. It is not reasonable, or even desirable, that all the competences required at each stage could be acquired through courses or other types of formal training. Nevertheless, other specific training actions and activities can undoubtedly contribute to career development and should not be neglected, particularly at early career stages.

**Aims and scope.** Since December 2016, the ICP adheres to the general principles and requirements of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers of the Human Resources Strategy for Researchers of the European Union (European Commission, 2005; see also Cameron et al., 2015). To implement the application of the Charter & Code principles during 2017-2020, the ICP has devised an HRS4R Action Plan ([http://www.icp.cat/attachments/transparencia/HRS4R\\_ICP\\_Action\\_Plan.pdf](http://www.icp.cat/attachments/transparencia/HRS4R_ICP_Action_Plan.pdf)) that, among other actions, includes the present manual with the ICP strategy for the professional development of researchers. This document is aimed to be distributed among ICP personnel as well as candidates for recruitment, in order to clarify the ICP strategy in this regard, including its continuous training policies. Emphasis is put on the professional categories recognized among ICP researchers based on career stage, the roles and skills expected for each category, the available professional paths available to ICP researchers), and the recognition of the value of mobility, teaching, supervision/mentoring, and leadership.

This document is divided into three main sections: the Introduction, which provides the necessary background and clarifies the aims and scope; a second section about applicable principles and concepts, which summarizes or reproduces relevant information provided by various sources; and, finally, a third section devoted to the specific ICP strategy for the professional development of researchers, with emphasis on the aspects mentioned in the preceding paragraph above.



## **APPLICABLE PRINCIPLES AND CONCEPTS**

**European Framework for Research Careers.** Four different researcher profiles are distinguished based on European Framework for Research Careers (European Commission, 2011; see also Eurodoc, 2011), corresponding to broad stages of a research career. These are described below, together with the necessary and desirable competences that the European Framework for Research Careers (European Commission, 2011) identifies for each career stage:

- **R1. First Stage Researchers:** Individuals doing research under supervision, including doctoral candidates and other junior researchers in their early career years that are setting up their own research framework. Necessary competences: (1) carry out research under supervision; (2) have the ambition to develop knowledge of research methodologies and discipline; (3) have demonstrated a good understanding of a field of study; (4) have demonstrated the ability to produce data under supervision; (5) be capable of critical analysis, evaluation and synthesis of new and complex ideas; (6) be able to explain the outcome of research and value thereof to research colleagues. Desirable competences: (a) develop integrated language, communication and environment skills, especially in an international context.
- **R2. Recognized Researchers:** Individuals such as junior postdocs that hold a doctorate degree but who have not yet established a significant level of independence, or researchers with an equivalent level of experience and competence, in spite of having already several publications. Necessary competences: all competences of R1, plus (7) have demonstrated a systematic understanding of a field of study and mastery of research associated with that field; (8) have demonstrated the ability to conceive, design, implement and adapt a substantial program of research with integrity; (9) have made a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, innovation or application; (10) demonstrate critical analysis, evaluation and synthesis of new and complex ideas; (11) can communicate with their peers (be able to explain the outcome of their research and value thereof to the research community); (12) take ownership for and manages own career progression, set realistic and achievable career goals, identify and develop ways to improve employability; (13) coauthor papers at workshops and conferences. Desirable competences: (b) understand the agenda of industry and other related employment sectors; (c) understand the value of their research work in the context of products and services from industry and other related

employment factors; (d) can communicate with the wider community, and with society generally, about their areas of expertise; (e) can be expected to promote, within professional contexts, technological, social or cultural advancement in a knowledge based society; (f) can mentor First Stage Researchers, helping them to be more effective and successful in R&D trajectory.

- **R3. Established Researchers:** Individuals who have developed a level of independence in their research, as attested by the fact that they have started taking leading roles in research projects and fundraising. They can be tenure-track researchers or permanent staff researchers. Necessary competences: all necessary and most desirable competences of R2 plus (14) have an established reputation based on research excellence in their field; (15) make a positive contribution to the development of knowledge, research and development through cooperations and collaborations; (16) identify research problems and opportunities within their area of expertise; (17) identify appropriate research methodologies and approaches; (18) conduct research independently which advances a research agenda; (19) can take the lead in executing collaborative research projects in cooperation with colleagues and project partners; (20) publish papers as lead author, organize workshop or conference sessions. Desirable competences: (g) establish collaborative relationships with relevant industry research or development groups; (h) communicate their research effectively to the research community and wider society; (i) are innovative in their approach to research; (j) can form research consortia and secure research funding/budgets/resources from research councils or industry; (j) are committed to professional development of their own career and act as mentor for others.
- **R4. Leading Researchers:** Individuals that lead their research area or field and hence have a greater independence than established researchers, including the team leaders of research groups, but exceptionally in some disciplines individuals who operate as lone researchers. Necessary competences: all necessary and most desirable competences of R3 plus (21) have an international reputation based on research excellence in their field; (22) demonstrate critical judgment in the identification and execution of research activities; (23) make a significant contribution (breakthroughs) to their research field or spanning multiple areas; (24) develop a strategic vision on the future of the research field; (25) recognize the broader implications and applications of their research; (26) publish and present influential papers and books, serve on workshop and conference organizing committees and deliver invited talks. Desirable competences: (k) are expert at managing and leading research projects; (l) are skilled at managing and developing others; (m) have a proven record in securing significant research

funding/budgets/resources; (n) beyond team building and collaboration, focus on long-term planning (e.g., career paths for the researchers and securing funding for other team positions); (o) are excellent communicators and networkers within and outside the research community; (p) are able to create an innovative and creative environment for research; (q) act as a professional development role model for others.

In turn, the Eurodoc's (2011) document further complements the previous competences by providing a more specific summary list of skills (here grouped by career stage):

1. Effective teaching: R1, R2.
2. Effective communication and presentation (verbal and non-verbal): R1, R2, R3, R4.
3. Networking: R1.
4. International networking through participation in international conferences, articles in international journal, involvement in international research networks, etc.: R2, R3, R4.
5. Building a conceptual framework: R1.
6. Writing in academic, popular and other media: R2, R3, R4.
7. Identify new research targets: R2.
8. Reviewer: R2.
9. Project management skills: R3, R4.
10. Leadership skills: R3, R4.
11. Initiative and resourcefulness: R3.
12. Entrepreneurship and initiative thinking: R4.
13. Embeddedness of research into society and business: R4.
14. Mentoring: R4.

**UAB Professional Development Programme for Researchers.** The Professional Development Programme for Researchers of the UAB (Díaz et al., 2018) includes a Professional Competence Model for UAB researchers that includes 22 transferable skills, largely based on those proposed by the European Science Foundation (EST, 2009) and the Researcher Development Framework of the UK (VITAE, 2001). In turn, these skills are grouped into the six categories recognized by the Organisation for Economic Co-operation and Development (OECD, 2012). This model aims “to identify and to define the key skills that all researchers need to develop through every step of their research career in order to contribute to their professional and personal development”. The six categories (areas of competence) and included skills

(descriptors) are reported below in greater detail (reproduced from Díaz et al., 2018), being also summarized in the subsequent two figures.

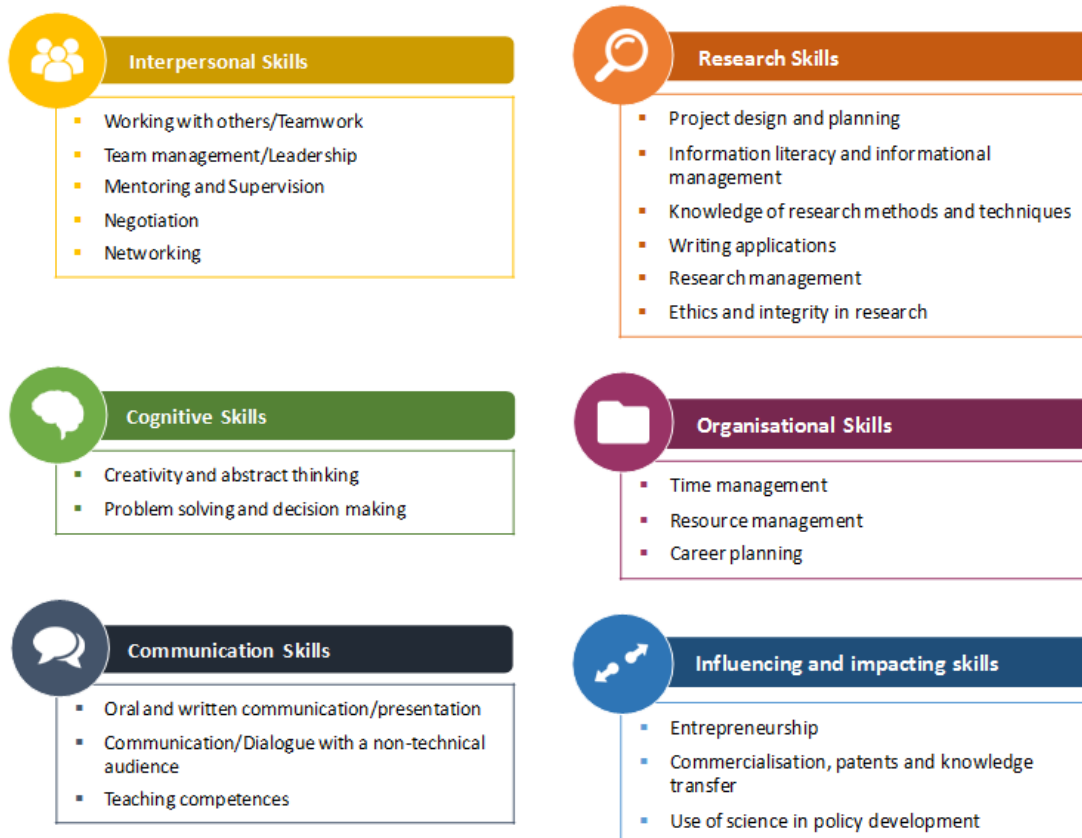
- **C1. Interpersonal skills:** This category includes the skills necessary for establishing effective professional relationships and links with all kinds of people and groups.
  1. **c1.1. Working with others/team work:** Capacity to contribute to team work, avoid and/or resolve conflicts, motivate others and promote a collaborative working environment.
  2. **c1.2. Team management/leadership:** Capacity to lead a group, create a shared vision and goal, and motivate a working independently of their race, gender, sexual orientation and religious affiliation.
  3. **c1.3. Mentorship and supervision:** Capacity to respond effectively to advice and criticism, and to guide and give support and advice to others.
  4. **c1.4. Negotiation:** Capacity to promote consensus: in other words, to bring different criteria together and reach agreements which benefit all parties.
  5. **c1.5. Networking:** Capacity to establish personal and professional relationships and construct a broad network of contacts for exchanging personal and professional information.
- **C2. Cognitive skills:** Includes the skills necessary for the identification, planning and solution of problems effectively and meaningfully.
  6. **c2.1. Creativity and ability for abstract thinking:** Capacity to go beyond ideas, norms and traditional relations to create new ideas, methods and interpretations.
  7. **c2.2. Problem solving and decision making:** Capacity for defining problems and finding solutions that are appropriate to the context.
- **C3. Communicative skills:** This category includes the skills necessary for transmitting information clearly and comprehensively to all kinds of people and groups.
  8. **c3.1. Communication/oral and written presentation:** Capacity to understand, interpret, create and communicate information appropriately, both orally and in writing.
  9. **c3.2. Communication/dialogue with non-specialist public:** Capacity to communicate and conduct conversations and dialogue orally and in writing to a non-specialist audience.
  10. **c3.3. Teaching skills:** Capacity to train and support the learning process of students when involved in tasks of learning and demonstrating.
- **C4. Research skills:** This category includes the skills necessary for carrying out valid, useful and quality projects.

- 11. **c4.1. Project design and planning:** Capacity for planning projects that respond to realistic objectives.
- 12. **c4.2. Information literacy and management:** Ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information or the issue or problem at hand.
- 13. **c4.3. Knowledge of research method and techniques:** Capacity to apply a broad range of research methods and techniques with confidence.
- 14. **c4.4. Writing funding applications:** Capacity to write and present funding applications.
- 15. **c4.5. Research management:** Capacity to manage research projects with professionalism, transparency and responsibility.
- 16. **c4.6. Research ethics and integrity:** Capacity to apply ethical and research directives.
- **C5. Organizational skills:** This category includes the skills necessary for the efficient management of researchers' own work and that of employees they are responsible for.
  - 17. **c5.1. Time management:** Capacity for efficient time management and to complete tasks and project within deadlines.
  - 18. **c5.2. Resource management:** Capacity to plan and manage the resources necessary to carry out a project.
  - 19. **c5.3. Career planning:** Capacity to manage, plan and make informed decisions about professional careers.
- **C6. Influence and impact skills:** This category includes the skills necessary for being able to have an influence and an impact on the academic, social, cultural and economic environments.
  - 20. **c6.1. Entrepreneurship:** Capacity to turn ideas into actions.
  - 21. **c6.2. Commercialization, patents and knowledge transfer:** Capacity to identify and understand the aspects of individual research, which could have and impact in socioeconomic environment.
  - 22. **c6.3. Use of science for policy development:** Capacity to inform and influence policy makers through individual research.



*Adapted from ESF (2009) and OCDE (2012)*

Reproduced from Díaz et al. (2018).



Reproduced from Díaz et al. (2018).



**European Charter & Code for Researchers.** Since late 2016, the ICP adheres to the European Charter for Researchers and Code of Conduct for the Recruitment of Researchers (European Commission, 2005; Cameron et al., 2015) in the framework of the EU Human Resources Strategy for Researchers (HRS4R). In order to reach full implementation of the 40 principles included in the Charter & Code (31 in the Charter and 9 in the Code), in 2017 the ICP performed a gap analysis and, on its basis, elaborated a HRS4R Action Plan ([http://www.icp.cat/attachments/transparencia/HRS4R\\_ICP\\_Action\\_Plan.pdf](http://www.icp.cat/attachments/transparencia/HRS4R_ICP_Action_Plan.pdf)). It includes multiple actions, including the present strategy on the professional development of researchers. The 40 principles of the Charter & Code are grouped into four different categories (Cameron et al., 2015, numeration follows their gap analysis overview template): (a) Ethical and professional aspects (1-11, Charter); (b) Recruitment and selection (12-21, Code except for #12); (c) Working conditions and social security (22-35, Charter); and (d) Training and development (36-40, Charter). The principles that are directly relevant to career development are quoted totally or partially below (European Commission, 2005; numeration after Cameron et al., 2015):

- 13. Recruitment (Code).** Employers should establish recruitment procedures which are open. Employers should include a description of the working conditions and entitlements, including career development prospects.
- 15. Transparency.** Candidates should be informed, prior to the selection, about career development prospects.
- 21. Postdoctoral appointments.** Clear rules and explicit guidelines for the recruitment and appointment of postdoctoral researchers, including the maximum duration and the objectives of such appointments, should be established by the institutions appointing postdoctoral researchers. Such guidelines should take into account time spent in prior postdoctoral appointments at other institutions and take into consideration that the postdoctoral status should be transitional, with the primary purpose of providing additional professional development opportunities for a research career in the context of long-term career prospects.
- 22. Recognition of the profession.** All researchers engaged in a research career should be recognized as professionals and be treated accordingly. This should commence at the beginning of their careers, namely at postgraduate level, and should include all levels, regardless of their classification at national level (e.g. employee, postgraduate student, doctoral candidate, postdoctoral fellow, civil servants).
- 25. Stability and permanence of employment.** Employers should ensure that the performance of researchers is not undermined by instability of employment contracts, and should therefore commit themselves as far as possible to improving the stability of employment conditions for researchers, thus implementing and

abiding by the principles and terms laid down in the EU Directive on Fixed-Term Work.

28. **Career development.** Employers of researchers should draw up a specific career development strategy for researchers at all stages of their career, regardless of their contractual situation, including for researchers on fixed-term contracts. It should include the availability of mentors involved in providing support and guidance for the personal and professional development of researchers, thus motivating them and contributing to reducing any insecurity in their professional future. All researchers should be made familiar with such provisions and arrangements.
29. **Value of mobility.** Employers must recognize the value of geographical, intersectoral, inter- and transdisciplinary and virtual mobility as well as mobility between the public and private sector as an important means of enhancing scientific knowledge and professional development at any stage of a researcher's career. Consequently, they should build such options into the specific career development strategy and fully value and acknowledge any mobility experience within their career progression/appraisal system.
30. **Access to career advice.** Employers should ensure that career advice and job placement assistance, either in the institutions concerned, or through collaboration with other structures, is offered to researchers at all stages of their careers, regardless of their contractual situation.
33. **Teaching.** Teaching is an essential means for the structuring and dissemination of knowledge and should therefore be considered a valuable option within the researchers' career paths. However, teaching responsibilities should not be excessive and should not prevent researchers, particularly at the beginning of their careers, from carrying out their research activities. Employers should ensure that teaching duties are adequately remunerated and taken into account in the evaluation/appraisal systems, and that time devoted by senior members of staff to the training of early stage researchers should be counted as part of their teaching commitment. Suitable training should be provided for teaching and coaching activities as part of the professional development of researchers.
36. **Relation with supervisors.** Researchers in their training phase should establish a structured and regular relationship with their supervisor(s) and faculty/departmental representative(s) so as to take full advantage of their relationship with them. This includes keeping records of all work progress and research findings, obtaining feedback by means of reports and seminars, applying such feedback and working in accordance with agreed schedules, milestones, deliverables and/or research outputs.

37. **Supervision and managerial duties.** Senior researchers should devote particular attention to their multi-faceted role as supervisors, mentors, career advisors, leaders, project coordinators, managers or science communicators. They should perform these tasks to the highest professional standards. With regard to their role as supervisors or mentors of researchers, senior researchers should build up a constructive and positive relationship with the early-stage researchers, in order to set the conditions for efficient transfer of knowledge and for the further successful development of the researchers' careers.
38. **Continuing professional development.** Researchers at all career stages should seek to continually improve themselves by regularly updating and expanding their skills and competencies. This may be achieved by a variety of means including, but not restricted to, formal training, workshops, conferences and e-learning.
39. **Access to research training and continuous development.** Employers should ensure that all researchers at any stage of their career, regardless of their contractual situation, are given the opportunity for professional development and for improving their employability through access to measures for the continuing development of skills and competencies. Such measures should be regularly assessed for their accessibility, take-up and effectiveness in improving competencies, skills and employability.
40. **Supervision.** Employers should ensure that a person is clearly identified to whom early-stage researchers can refer for the performance of their professional duties, and should inform the researchers accordingly. Such arrangements should clearly define that the proposed supervisors are sufficiently expert in supervising research, have the time, knowledge, experience, expertise and commitment to be able to offer the research trainee appropriate support and provide for the necessary progress and review procedures, as well as the necessary feedback mechanisms.



## ICP STRATEGY FOR RESEARCH CAREER DEVELOPMENT

In agreement with the principles of the European Charter & Code for Researchers, the ICP is committed to promote the continuing development of researchers' capacities and skills. With this aim in mind, and in further agreement with principle 30 of the Charter & Code (according to which the ICP should ensure career advice assistance to researchers at any stage), we provide below the main guidelines of the ICP Strategy for the Professional Development of Researchers.

**Career development in recruitment.** According to the European Code for Researchers (principles 13 and 15), before the selection process employers should inform candidates for recruitment about career development, with emphasis on the maximum duration and objectives of postdoctoral appointments (principle 21). In agreement with such requirement, the recruitment policy of the ICP (as indicated in its Protocol for the Evaluation, Internal Promotion and Recruitment of Researchers and Technicians, [http://www.icp.cat/attachments/transparencia/ICP\\_Recruitment\\_Protocol.pdf](http://www.icp.cat/attachments/transparencia/ICP_Recruitment_Protocol.pdf), hereafter 'recruitment protocol') requires that job announcements include career progression prospects (professional development opportunities), especially for tenure-track positions. The present document describes the ICP career development strategy in much greater detail and further clarifies the duration of postdoctoral appointments. Future job announcements by the ICP will have to refer to the present document so as to provide potential candidates with all the available information in these regards.

**Researcher professional categories.** In agreement with principle 22 of the European Charter for Researchers, the Organization Chart of the ICP (see last version at [http://www.icp.cat/attachments/transparencia/ICP\\_Organization\\_Chart.pdf](http://www.icp.cat/attachments/transparencia/ICP_Organization_Chart.pdf)) includes all research personnel professionals, beginning with early stage researchers that have yet to complete their PhD. In particular, the ICP recognizes four main categories of researchers (R1 to R4) that include all the stages of the professional career, in accordance with the profiles distinguished by the European Framework for Research Careers (European Commission, 2011; see also above for further details): R1 – First Stage Researchers (up to the PhD completion); R2 – Recognized Researchers (doctors that are not yet fully independent); R3 – Established Researchers (those who have developed certain level of independence); and R4 – Leading Researchers (those leading their research area or field).

The equivalences of these profiles with ICP professional categories are provided below, being divided into early-stage researchers (R1 and R2) and experienced researchers (R3 and R4). Early-stage researchers must have at least one supervisor from their same research group (which might not necessarily be the group leader), whereas experienced researchers only depend on their group leader and the director of the institution.

- R1 – First Stage Researchers (up to the point of PhD): They correspond to ICP predoctoral researchers—either with an ICP predoctoral contract or with a competitive contract from an external funding agency—as well as graduate collaborators, master students and PhD students affiliated to the ICP.
- R2 – Recognized Researchers (PhD holders or equivalent who are not yet fully independent): They correspond to ICP postdoctoral researchers, i.e., PhD holders with either a fixed-term ICP contract or a competitive research contract ('Juan de la Cierva,' 'Beatriu de Pinós', or equivalent) of less than five years, as well as grantees of an ERC Starting Grant. Some research associates—those with a postdoctoral position in their respective primary institution, or with less than five years of postdoctoral experience and/or without a tenure-track/tenured position—are also included within this category.
- R3 – Established Researchers (researchers who have developed a level of independence): They correspond to ICP Researchers, i.e., PhD holders with either five years or more of postdoctoral experience and a tenured position (civil servants or those with an indefinite/long-term contract) or with a tenure-track competitive research contract of five years or more ('Ramón y Cajal' or equivalent), as well as grantees of an ERC Consolidator Grant. Junior Research Group Heads and some Research Associates—those with a tenure-track/tenured position in their respective primary institution and more than five years of postdoctoral experience—are also included within this category.
- R4 – Leading Researchers (researchers leading their research area or field): They correspond to ICP Senior Researchers, i.e., those that have a well-attested degree of seniority within the field of vertebrate paleontology and that further exercise a leading role with regard to ICP research goals. These include the Scientific Director, the Senior Research Group Heads, ICREA Research Professors, and grantees of an ERC Advanced Grant. Some Research Associates—those who hold a chair in a university department, or otherwise play a senior leading role in vertebrate paleontology research—are also included within this category.

According to the ICP Organization Chart, the research positions currently distinguished at the ICP are defined as follows:

- Predoctoral Researcher (R1):
  1. Collaboration with the corresponding supervisor(s) in order to attain perform a PhD within the framework of the specific goals of the research group, in accordance to the strategic aims and scientific policy of the ICP, including publications, contributions to meetings and fieldwork activities.
  2. Participation in research project applications by the corresponding supervisor.
  3. Publication, as first author or coauthor, of articles in SCI journals.
  4. Attendance and contribution to international and national scientific meetings.
  5. Attendance to scientific training courses, conference cycles and workshops.
  6. Participation in emergency paleontological interventions of prospection, excavation and/or sampling.
  7. Providing the Scientific Director and the Head of the Communication & Scientific Dissemination Area with regular updates of the (co)authored publications.
  8. Providing the Head of the Communication and Scientific Dissemination Area with all the required noticeable information regarding the research and dissemination activities performed.
- Postdoctoral Researcher (R2):
  1. Collaboration with the researchers of the research group (and in particular to the corresponding supervisor) in order to attain the specific goals of the research group in accordance to the strategic aims and scientific policy of the ICP, including publications, contributions to meetings and fieldwork activities.
  2. Participation in research project applications by other members of the research group (especially the corresponding supervisor).
  3. (Co-)supervision of master and bachelor theses.
  4. Publication, as first author or coauthor, of articles in SCI journals.
  5. Attendance and contribution to international and national scientific meetings.
  6. Teaching in master and/or bachelor degrees.
  7. Attendance to scientific training courses, conference cycles and workshops.
  8. (Co-)direction of and/or participation in planned and emergency paleontological interventions of prospection, excavation and/or sampling (if applicable).
  9. Providing the Scientific Director and the Head of the Communication & Scientific Dissemination Area with regular updates of the (co)authored publications.
  10. Providing the corresponding Research Group Head with all the fieldwork reports and memoirs elaborated for the paleontological interventions (co)directed.
  11. Providing the Head of the Communication and Scientific Dissemination Area with all the required noticeable information regarding the research and dissemination activities performed.
- Researcher (R3):

1. Collaboration with the researchers of the research group (or members of the research support area) in order to attain the specific goals of the research group in accordance to the strategic aims and scientific policy of the ICP, including publications, contributions to meetings and fieldwork activities.
  2. Participation in research project applications by other members of the research group (or members of the research support area), and role of co-principal investigator in major project applications and of principal investigator in minor project applications.
  3. Cosupervision of PhD dissertations and supervision of master and bachelor theses.
  4. Publication, normally as first author or coauthor, but occasionally as last or corresponding (when acting as supervisor) of articles in SCI journals.
  5. Attendance and contribution to international scientific meetings.
  6. Teaching in master degrees.
  7. (Co-)direction of and/or participation in planned and emergency paleontological interventions of prospection, excavation and/or sampling (if applicable).
  8. Member of Editorial Boards of SCI journals.
  9. Providing the Scientific Director and the Head of the Communication & Scientific Dissemination Area with regular updates of the (co)authored publications.
  10. Providing the corresponding Research Group Head with all the fieldwork reports and memoirs elaborated for the paleontological interventions (co)directed.
  11. Providing the Head of the Communication and Scientific Dissemination Area with all the required noticeable information regarding the research and dissemination activities performed.
- Senior Researcher (R4):
    1. Significant role in the fulfillment of the specific goals of the research group in accordance to the strategic aims and scientific policy of the ICP.
    2. Collaboration with the researchers of the research group in order to attain the above-mentioned specific goals, including publications, contributions to meetings and fieldwork activities.
    3. Role of (co-)principal investigator in major research project applications, and participation in minor research project applications by other members of the research group.
    4. Supervision of PhD dissertations and master theses.
    5. Publication, normally as senior (last, corresponding and/or first) author, but occasionally as coauthor, of articles in SCI journals.
    6. Contribution to international scientific meetings.
    7. Teaching in master degrees.



8. Direction of planned and emergency paleontological interventions of prospection, excavation and/or sampling (if applicable).
9. Leading role in Editorial Boards of SCI journals.
10. Providing the Scientific Director and the Head of the Communication & Scientific Dissemination Area with regular updates of the (co)authored publications.
11. Providing the corresponding Research Group Head with all the fieldwork reports and memoirs elaborated for the paleontological interventions (co)directed.
12. Providing the Head of the Communication and Scientific Dissemination Area with all the required noticeable information regarding the research and dissemination activities performed.

At the ICP there are three additional positions that overlap with some of the above, in the sense that can only be occupied by ICP researchers of certain profiles: research associate, head of research group, and scientific director. They are detailed below. It must be clarified that the scientific director is normally the same person as the ICP Director. However, while the latter must be a researcher, it further constitutes a governing organ, which may potentially delegate their tasks related the scientific policy and research strategic aims of the ICP (as specified below) to the scientific director.

- Research Associate: This category applies to various reach profiles (R2-R4), as the only condition in this regard is the possession of a PhD degree (so that the R1 profile is excluded). It does not imply an employer-employee relationship, but must be formalized by means of a written agreement.
1. Collaboration with the researchers of the respective research group in order to attain its specific goals, in accordance to the strategic aims and scientific policy of the ICP, including publications, contributions to meetings and fieldwork activities.
  2. Participation in research project applications led by members of the respective research group (if allowed by the provisions of the corresponding project calls).
  3. Publication of SCI articles and other written scientific contributions with ICP affiliation.
  4. Providing the Scientific Director and the Head of the Communication & Scientific Dissemination Area with regular updates of the (co)authored publications.
  5. Providing the corresponding Research Group Head with all the fieldwork reports and memoirs elaborated for the paleontological interventions (co)directed.
  6. Providing the Head of the Communication and Scientific Dissemination Area with all the required noticeable information regarding the research and dissemination activities performed.

- **Head of Research Group:** This category only applies to experienced researchers (R3 or R4), particularly those that enjoy a permanent position. Two subcategories are distinguished: junior (R3) and senior (R4). Exceptionally, tenure-track researchers (R3) may be appointed as junior research group heads.
  1. Leading role in the design and fulfillment of the specific goals of the research group in accordance to the strategic aims and scientific policy of the ICP.
  2. Coordination of the researchers of the research group in order to attain the above-mentioned specific goals, including publications, contributions to meetings, fieldwork activities and knowledge transfer.
  3. Promotion and establishment of collaborative relationships with researchers from other (preferably foreign) institutions.
  4. Recruitment of potential PhD grantees, candidates to competitive research contracts and Research Associates to join the ICP.
  5. Role of principal investigator in major project applications, and participation in minor research project applications by other members of the research group.
  6. Supervision of PhD dissertations and master theses.
  7. Publication, normally as senior (last, corresponding and/or first) author, but occasionally as coauthor, of articles in SCI journals.
  8. Contribution to international scientific meetings.
  9. Teaching in master degrees.
  10. Supervision and/or direction of planned and emergency paleontological interventions of prospection, excavation and/or sampling (if applicable).
  11. Providing the Head of the Fieldwork Management Area with all the fieldwork reports and memoirs elaborated by the members of the research group, irrespective of the institution that holds the provisional and permanent deposit.
  12. Providing the Head of the Communication and Scientific Dissemination Area with all the information required to elaborate the ICP annual memoirs.
- **Scientific Director:** This position can only be performed by a senior researcher (R4) and is not incompatible (indeed, it is expected to overlap) with the category of senior research group head.
  1. Coordination of the various ICP research groups.
  2. Determination of the scientific policy of the ICP.
  3. Nomination and dismissal of research group heads.
  4. Supervision of the fulfillment of ethical principles related to research and intellectual property at the ICP.
  5. Coordination of fundraising initiatives related to ICP research projects.
  6. Archive and maintenance of an updated list of ICP publications.
  7. Member of the Steering Committee (if different from the Director).

**Types of contracts for researchers.** According to principle 25 of the European Charter & Code for Researchers, the ICP should commit to improve as far as possible the stability of employment contracts for researchers, by abiding to the EU Framework on Fixed-Term Work (EU, 1999), concluded by the European Trade Confederation (ETUC), the Union of Industrial and Employers' Confederations of Europe (UNICE), and the European Centre of Employers and Enterprises providing Public Services (CEEP). This directive from the European Council aims prevent fixed-term employees from being treated less favorably than permanent employees, to prevent abuse due to the use of successive fixed-term contracts, to improve access to training for fixed-term employees, and to ensure that fixed-term employees are informed about available permanent jobs.

In line with the aforementioned guidelines, the ICP commits to treating its research personnel fairly and equally irrespective of their contractual situation, as well as to limit the overall extension of fixed-term contracts and give opportunities to its fixed-term employees to access permanent positions when allowed by budgetary constraints and in agreement with currently applicable legislation. Nevertheless, the types and extension of contracts for researchers varies at the ICP depending on each position. In particular, ICP staff researchers (i.e., excluding research associates) have different types of contracts, based either on the Spanish Statute of Workers (which regulates generalized fixed-term and permanent contracts, as well as work and service contracts) or on the Spanish Law of Science, Technology and Innovation (which further recognizes predoctoral contracts, contract of access to the Spanish System of Science, Technology and Innovation, and distinguished researcher contracts).

The modality of 'predoctoral contract' is aimed for research work as part of an original project for university graduates with at least 300 ECTS credits (European Credit Transfer System) or a university master's degree or equivalent who have been accepted onto a PhD course (FECYT, 2017). This type of contract allows the PhD trainee to be employed by a public university or research center, must be accompanied by the written acceptance of the predoctoral trainee in the PhD program, and must be full-time and fixed-term (between 1 and 4 years; FECYT, 2017). In agreement with current legislation, predoctoral researchers (R1) will normally have a predoctoral contract of 3 or 4 years with the ICP, either financed by an external funding agency (usually with some cofunding by the ICP) or by the ICP basal budget; however, contracts or grants between the PhD candidate and the external funding agency are also acceptable, as long as there is a formal ascription of the ICP candidate to the ICP. No extensions of predoctoral contracts are possible beyond 4 years, although researchers at the predoctoral stage might be subsequently hired by means of work and service contract to perform specific tasks (see below).

Contracts for postdoctoral researchers (R2) funded by the ICP will be generally limited to a maximum duration of 4 years (independently from the number of contracts), and must be of the general fixed-term modality. This maximum of four years is not incompatible with other fixed-term contracts funded by external agencies or work and services contracts to perform specific tasks (such as the completion of a research project).

Work and service contracts differ from fixed-term contracts *sensu stricto*, in the sense that, unlike the latter, they must not necessarily be conditioned by the attainment of a specific date, but can be bound to the completion of a specific task. Work and service contracts can be funded by research projects or the ICP basal budget, and are available for predoctoral and postdoctoral researchers, as long as their aim is explicitly specified in the contract and their duration does not exceed one year (exceptions in the latter regard would require the explicit approval by the Steering Committee). No permanent contracts are possible for researchers in training (R1 and R2).

In the case of ICP researchers (R3), contracts can be of the general permanent type or fixed-term. The former are generally funded by the ICP basal budget, without prejudice that they can be totally or partially financed by means of external funding agencies (e.g., within the framework of the Program I3 for the stabilization of researchers). Alternatively, R3 researchers may have a fixed-term contract under the modality of contract of access to the Spanish System of Science, Technology and Innovation. This contract was designed to mimic the tenure-track system used in other countries (FECYT, 2017), and generally includes evaluations at the second year and toward its completion. However, unlike the tenure-track system of other countries, stabilization at the end of the contract cannot exclusively rely on the result of the evaluations, and implies an open, transparent and merit-based recruitment process open to other researchers. Furthermore, the possibility to stabilize tenure-track researchers with this kind of contract depends on the positive results of the internal evaluation performed by the ICP as well as budgetary availability and other legal constraints that may apply. If all the requirements are fulfilled, an open call is made of a permanent research position based on the research lines of the ICP researcher in tenure-track. Fixed-term R3 contracts may be directly funded by the ICP or by external funding agencies, usually with some cofunding by the former (e.g., Ramón y Cajal contracts). The possible duration of these contracts ranges from 1 to 5 years, but at the ICP they are normally expected to last 4 or 5 years. Researchers under this type of contract can complement their work with teaching activities up to 80 hours/year. If required by external funding agencies, this type of contract might be used for postdoctoral researchers (up to a maximum of four years, generally less), but in this

case no tenure-track option would be associated. Otherwise, the ICP considers that researchers in tenure-track under this type of contract for 4-5 years and more than 4 years of postdoctoral experience no longer qualify as researchers in training (R2), but must be considered experienced researchers (R3).

Finally, senior researchers (R4) may have a contract paid by the ICP, may be hired by external public entities (e.g., ICREA), or be civil servants (from the Administration or a university). When these researchers are not directly hired by the ICP, a formal agreement is required to formalize their ascription. Senior researchers will normally have a permanent contract, either of general type or, ideally, a distinguished researcher contract. However, it must be emphasized that the latter must not necessarily be of permanent type, but might be of fixed-type without any legal restrictions to its total duration (which will be determined by mutual agreement). Distinguished researcher contracts are aimed for researchers of renowned prestige that, besides performing research, also lead research teams or centers, unique scientific or technological facilities, and/or research programs of great importance (FECYT, 2017). When hired by funds from the basal budget, at least the ICP Director and senior research group leaders are expected to be hired under this contract modality.

**Required skills at various research career stages.** Throughout career development, researchers need to acquire a series of key skills at different stages. The possession of such skills it is not absolute (presence/absence), but generally implies a progressive acquisition and refinement as researchers progress along their career paths. Therefore, considerable variation is to be expected depending on individual capacities as well as both personal and professional circumstances. The following table summarizes the various skills that researchers are expected to attain or possess at each stage of career development (based on the various skills and six broad categories distinguished by the Professional Development Programme for Researchers of the UAB, see above), using a four-score scale (0=negligible; 1=insufficient; 2=developed; 3=well-developed), and starting from undergraduate students up to senior researchers. In this table R0=undergrads, R1=predocs, R2a=junior postdocs, R2b=senior postdocs, R3=researchers, and R4=senior researchers.

Undergraduate students are considered to generally possess basic writing/oral communication, information literacy and time management skills, and none of the remaining skills that will subsequently be required for career development. Therefore, besides improving their writing/oral communication skills, predoctoral students must acquire a whole new set of skills (even if to a basic level), which are related to

<b>Interpersonal skills:</b>	<b>R0</b>	<b>R1</b>	<b>R2a</b>	<b>R2b</b>	<b>R3</b>	<b>R4</b>
Working with others/team work	0	1	1	2	2	3
Team management/leadership	0	0	0	1	2	3
Mentorship and supervision	0	0	1	2	3	3
Negotiation	0	0	0	1	2	3
Networking	0	1	2	2	3	3
<b>Cognitive skills:</b>	<b>R0</b>	<b>R1</b>	<b>R2a</b>	<b>R2b</b>	<b>R3</b>	<b>R4</b>
Creativity and ability for abstract thinking	0	1	1	2	2	3
Problem solving and decision making	0	0	0	1	2	3
<b>Communicative skills:</b>	<b>R0</b>	<b>R1</b>	<b>R2a</b>	<b>R2b</b>	<b>R3</b>	<b>R4</b>
Communication/oral and written presentation	1	2	3	3	3	3
Communication/dialogue with non-specialist public	0	1	2	2	3	3
Teaching skills	0	1	2	3	3	3
<b>Research skills:</b>	<b>R0</b>	<b>R1</b>	<b>R2a</b>	<b>R2b</b>	<b>R3</b>	<b>R4</b>
Project design and planning	0	1	1	2	2	3
Information literacy and management	1	1	2	2	3	3
Knowledge of research method and techniques	0	1	1	2	3	3
Writing funding applications	0	1	2	2	3	3
Research management	0	0	1	1	2	3
Research ethics and integrity	0	1	2	2	3	3
<b>Organizational skills:</b>	<b>R0</b>	<b>R1</b>	<b>R2a</b>	<b>R2b</b>	<b>R3</b>	<b>R4</b>
Time management	1	1	1	1	2	3
Resource management	0	0	0	1	2	3
Career planning	0	1	1	2	2	3
<b>Influence and impact skills:</b>	<b>R0</b>	<b>R1</b>	<b>R2a</b>	<b>R2b</b>	<b>R3</b>	<b>R4</b>
Entrepreneurship	0	0	0	1	2	3
Commercialization, patents and knowledge transfer	0	0	1	1	2	3
Use of science for policy development	0	0	0	0	1	3

teamworking, networking, creativity and abstract thinking, communication with the general public, teaching, project design, research methods, fundraising, research ethics, and career planning. Junior postdocs are expected to further acquire some mentorship, research management, and knowledge transfer skills, while at the same time improving networking, teaching, dialogue with the general public, writing/oral communication, information literacy, fundraising, and research ethics abilities. In turn, senior postdocs should start acquiring leadership, negotiation, decision making, resource management, and entrepreneurship skills, while improving further teamworking, mentorship/supervision, creativity and abstract thinking, teaching, project design, research methods, and career planning. Experienced researchers would be required to acquire policy development abilities, while improving many other skills (teamworking, supervision, negotiation, networking, decision making, dialogue with the general public, information literacy, research methods, fundraising, research management, research ethics, time management, resource management, entrepreneurship, and knowledge transfer). Finally, senior researchers should still

improve further some of the aforementioned skills, namely teamworking, leadership, negotiation, creativity and abstract thinking, decision making, project planning, research, time and resource management, career planning, entrepreneurship, knowledge transfer and, especially, policy development.

**Researcher career path at the ICP.** According to principles 28 and 30 of the European Charter & Code for Researchers, employers should design a career development strategy for researchers at all stages irrespective of their contractual situation, as well as to provide them with career advice and job placement assistance. We describe below the various options available for researchers that wish to spend part of their career path at the ICP, depending on the various research career stages and professional categories outlined above as a starting point. Given that it is relatively frequent that researchers start their careers before reaching the R1 stage, an additional category (R0) is detailed below for undergraduates—even though it cannot be considered a professional researcher category.

- R0 – Undergraduate stage: There are several circumstances that enable undergraduate students to start collaborating with ICP researchers and that might facilitate their subsequent recruitment as predoctoral students. These include: (a) agreements between ICP researchers and high school teachers so that the former become external tutors of baccalaureate works (performed at the end of the second year of college bachelor's degree in Spain); (b) joining the ICP volunteering program to perform research support tasks (such as participating in fieldwork or laboratory work); and (c) agreements between the ICP and university faculties (normally of biology and geology) to perform tutorized practicums at the ICP. Such possibilities are mutually exclusive. Option (a) is the least frequent but may lead to (b) and/or (c), which unlike the former occur while the student is already enrolled in university courses. For potential researchers with the vocation to pursue research in vertebrate paleontology, collaborating with ICP researchers during their last years as undergraduates is very important to get firsthand knowledge of paleontological research and the ICP as an institution, before deciding to enroll in any of the university master degrees that habilitate for pursuing a PhD in this field.
- R1 – Predoctoral stage: The predoctoral stage is generally equated to PhD students and candidates, but in fact it also encompasses those graduate students that have enrolled in a master but have yet to start their PhD. Some PhD grants allow for soon-to-be master students to apply, but most require the completion of the master degree before applying. As such, enrolling in one of the masters in which ICP researchers regularly teach, and selecting a topic for the master thesis that can



be supervised by a ICP researcher, represent another optimal opportunity to know firsthand both ICP researchers and the research lines of the institution as a whole. In this regard, it must be noted that ICP researchers cannot be forced to supervise any particular student at any stage (see the section on mentoring and supervision later on this document). Therefore, getting to know ICP researchers in advance represents an additional guarantee for the potential success of the professional relationship between a student and their supervisor. Nevertheless, irrespective of whether a potential PhD student has collaborated with ICP researchers during the undergraduate stage and/or as a master student, all the available possibilities to get a grant to pursue a PhD imply an open, transparent and merit-based recruitment process of one sort or another.

Enjoying such kind of predoctoral grant (normally between 3 and 4 years in duration) is not a sine qua non for pursuing and successfully completing a PhD, and indeed is not infrequent that most determined students, after completing their master degree, enroll in a doctoral program with the hope of eventually getting a grant at some point. In such situations, ICP researchers are completely free to accept or decline to supervise PhD candidates that lack a predoctoral grant. Nevertheless, under such circumstances it is strongly recommended that the student has a part-time job outside academia and that the PhD dissertation is planned to be completed in a longer timespan (as allowed by most universities for students that have to make compatible their academic studies with work).

The ICP has the capacity to open positions for predoctoral researchers, but this is not normally done due to fund shortage, so that most PhD opportunities at the ICP stem from competitive contracts offered by external funding agencies, especially the Catalan Government (FI grants) or the Spanish Government (FPI and FPU grants). FPI grants consist of four-year contracts aimed to graduates and other individuals that wish to be trained as predoctoral researchers and who are enrolled on a PhD program at the time of signing the contract (which normally implies the previous attainment of the master degree). These FPI contracts are linked to particular research projects led by the ICP, with candidates being prioritized by the principal investigators of each project. FPU grants similarly imply a four-year contract and are also aimed for graduates accepted/or enrolled on a doctoral program, but unlike FPI grants they are not linked to specific projects and are intended to train predoctoral researchers so that they can subsequently incorporate in the research and higher education system. FI grants are similar to FPI and FPU grants, but only last for three years. Unlike FPI grants, they are not linked to specific projects, and the candidates are prioritized by the ICP based on publicly-accessible criteria (which are partly decided by the ICP and approved by



the relevant funding agency). In all circumstances, to a large extent the selection of candidates is largely based on the academic qualifications of the student. However, the curriculum of the potential supervisor and/or the research group, as well as the training background, publication record (if any) and previous experience of the candidate are also taken into account. For this reason, having entered the research career path at the undergraduate level (either at the ICP or elsewhere) can be expected to have provide students with some leverage on their possibilities to get a predoctoral grant.

Undergraduate students and volunteers should not be considered researchers, irrespective of whether they participate in research and even if they publish some papers. In contrast, master and PhD students that are (co)supervised by one or more ICP researchers and who perform their research activities at the ICP (despite lacking a contractual relationship) must be considered ICP research personnel of R1 category. Therefore, they must be treated fairly and equally, i.e., according to the same guidelines as for ICP predoctoral researchers with a contract. Similarly, other graduates that regularly collaborate and eventually publish with ICP affiliation and lack a PhD should similarly be assimilated into the R1 category.

- R2 – Postdoctoral stage: The transition from being a predoc to being a postdoc researcher is not easy. On the one hand, it implies continuity, in the sense that both the R1 and R2 stages are of training. Therefore, in agreement with principle 36 of the Charter & Code, like PhD students, postdocs also require of one or more supervisor(s), without prejudice of the mentorship that should be provided by other researchers (as further explained below in the section on mentorship and supervision). On the other hand, the completion of the PhD dissertation generally represents a breaking point, in which the researcher no longer has very specific research aims (largely defined by their supervisor), but must start to plan its own research aims based on all the experience that he or she has accumulated during the predoctoral phase. This represents an opportunity to redefine and or broaden the researcher's main research line, in agreement and under the guidance of their supervisor(s). In practice, the start of the postdoctoral phase represents the beginning of a different type of training: while the predoctoral stage was focused on the acquisition of knowledge, competences and skills required to perform research, the postdoctoral phase is focused on the progressive attainment of greater research independence—which not only requires to broaden and deepen the researchers' knowledge about the research field and applicable methodologies, but also the acquisition of a new set of skills (see above). Although attaining a greater independence also implies greater research freedom, postdoctoral researchers must accommodate their research lines to the research

aims and scope of their immediate supervisors and their research groups, as well as to the mission of the ICP.

In recognition of the transitional nature of the postdoctoral stage, a distinction is made here between junior and senior postdocs: the former are those that have spent less than four years at the postdoctoral stage and hence are still in training and in the path of attaining enough research independence; senior postdocs (with more than four years at this stage) would be expected to have attained a sufficient research independence so as to apply for a tenure-track position—their main obstacle toward greater independence being precisely the scarcity of such contracts and the associated work instability.

The most important postdoc opportunities at the ICP stem from competitive contracts offered by the Spanish and the Catalan Governments within the frameworks of the Juan de la Cierva and Beatriu de Pinós programs, respectively (FECYT, 2017). Two modalities of Juan de la Cierva contracts are currently distinguished, roughly corresponding to the aforementioned subcategories of junior and senior postdoc researchers distinguished at the ICP. Juan de la Cierva-Formación consist of two-year contracts aimed to young researchers that recently obtained their PhD and who wish to continue their research career by initiating postdoctoral training in an institution different from the one where they obtained their PhD. In turn, Juan de la Cierva-Incorporación consists of a three-year contract and is aimed for more senior postdocs who have already completed a previous postdoc and therefore have already demonstrated some capacity for leading their research. Finally, the Beatriu de Pinós contracts currently have a duration of three years and are more generically aimed to postdoctoral researchers in general—although given the competition to get one of these grants, they fit better the senior postdoctoral profile described above. Grantees under the modality of ERC Starting Grants will be considered of R2 stage, but unlike postdoctoral researchers enjoying one of the national grants mentioned above, at the end of their contract they may be given—depending on budgetary availability and applicable regulations—the possibility to remain at the ICP as R3 researchers by means of an open call for tenure-track contract that fits their research profile (see below for further details).

Principle 21 of the European Charter & Code for Researchers indicates that explicit guidelines are required for the recruitment and appointment of postdoctoral researchers, with emphasis on their objectives and maximum duration. In agreement with this, at the ICP postdoctoral contracts must always be fixed-term and generally do not extend beyond four years (even if split into different, non-consecutive contracts). This provision, however, only applies to postdoctoral

positions entirely defrayed with the ICP basal budget, not to other competitive postdoctoral contracts enjoyed by the same person at the ICP (i.e., those paid by external funding agencies, even if with some cofunding by the ICP) or to other postdoctoral contracts that the same person could have previously enjoyed in other institutions. This strategy is aligned with the aforementioned principle of the Code & Charter, according to which the postdoctoral stage must be transitional, while at the same time should facilitate further opportunities for the professional development on the long term.

Finally, in agreement with the principle of mobility (see below), the ICP discourages its own predoctoral students to stay as postdoctoral researchers at the ICP after the completion of their PhD, and recommends instead to apply for postdoctoral opportunities abroad. However, the ICP considers acceptable that former PhD students of the ICP stay for some time based on work and service contracts defrayed with competitive funds from research projects, while they apply for postdoctoral positions elsewhere and until they get a job. When this is not possible, formerly PhD students of the ICP can easily negotiate a research associate position to maintain their ICP affiliation and their former prerogatives as ICP researchers, in order to facilitate the continuation of their research until they get a postdoctoral position elsewhere. In such cases, their status of ICP research associate can be maintained further if both parties agree and is not incompatible with the new primary affiliation of the postdoc. This is intended to continue facilitating the access of former PhD student to the fossil collections as well as providing them with other resources of the ICP, facilitate the publication of research outputs based on the data collected while working at the ICP without need to make particular agreements, and promote the return of former PhD students to the ICP as either senior postdocs or established researchers in the future (i.e., delayed talent retention). The ICP recommends that its former PhD students stay at least two years abroad as postdocs before trying to return to the ICP, in order to maximize their competitiveness in postdoctoral grant applications.

- **R3 – Independent researcher stage:** Transitioning from being a postdoc to being an experienced researcher is probably the most critical leap in a researcher's career. On the one hand, it implies the attainment of a substantial degree of research independence (being supervised only by the research group head), although, as in the case of postdocs, independent researchers must also accommodate their research lines to the aims and scope of their research group and the mission of the ICP, or at least agree upon the development of new research lines with the corresponding research group head, in agreement with the ICP's mission. On the other hand, becoming an independent researcher further

implies the beginning of a quest for increasing leadership, which requires the progressive acquisition and development of a particular set of skills and competences (as explained above). It is for this reason that ICP postdoctoral (R2) researchers cannot transition toward the R3 stage by means of internal promotion, but must be subject to an open, transparent and merit-based recruitment process, to which other researchers from the same and other institutions can also apply (see below for further details). Four years of postdoctoral experience is generally considered a minimum requirement at the ICP to be eligible for a position of R3 researcher. In contrast, there is no maximum limit to stay as a postdoctoral researcher (R2)—even if it is desirable that this stage does not last longer than eight years, and that a maximum of four years is allowed at the ICP for one or multiple postdoctoral contracts funded by the ICP basal budget.

There are three ways to enter the R3 stage at the ICP: by means of open calls for Ramón y Cajal Contracts, which are funded mainly by the Spanish Government with cofunding from the ICP; by means of open calls for positions funded exclusively by the ICP; or by means of ERC Consolidator Grants (or equivalent). Ramón y Cajal contracts have a duration of five years, are subject to external evaluations by the funding agency, and are considered of tenure-track type (i.e., the grantees must be given the possibility to stabilize at the ICP after the completion of the contract). Researcher positions funded by the ICP can be either of fixed-term (tenure-track type, with a duration usually of 4 or 5 years) or permanent, and in both cases imply an open, transparent and merit-based selection process that follows the guidelines detailed in the ICP recruitment protocol. In the same way that holders of ERC Starting Grants are considered R2 postdoctoral researchers and might be given the opportunity to apply to an open R3 tenure-track researcher position with their profile, grantees of ERC Consolidator Grants will be considered R3 experienced researchers and will be given the opportunity to stabilize at the ICP by means of an open call for a permanent R3 position with their research profile. As explained in the ICP recruitment protocol, the consolidation of ICP tenure-track positions will always be subject to budgetary availability and the fulfillment of current legislation, and must be approved by the Steering Committee.

To be given the possibility to stabilize, both ICP-funded, Ramón y Cajal and other tenure-track positions require the fulfillment of several criteria detailed in the recruitment protocol, based on the internal evaluation mechanisms of the ICP. Such internal criteria are more strict in the case of tenure-track positions funded by the ICP, whereas in the case of Ramón y Cajal grantees they require a positive

external I3 evaluation at the fourth year of contract. If all the necessary conditions and requirements are fulfilled, the profile of the researcher in tenure-track will determine the researcher profile that will be associated with the permanent position offered. Selection for applicants to the latter will be based on transparent, open and merit-based criteria, and hence other researchers that fit within the profile of the position will be able to apply. Otherwise, the evaluation will not differ from that of permanent R3 job offers, which will be performed according to the guidelines specified in the ICP recruitment protocol. Under normal conditions, the ICP will prioritize the offer of tenure-track R3 positions over permanent ones. However, given that stabilization requires an open call, it should be possible for other researchers (from the ICP or elsewhere) to enter directly the ICP with a permanent R3 position.

- R4 – Senior researcher stage: The term ‘senior’ here does not refer to more advanced age, but rather to holding a more authoritative condition as a researcher, in particular corresponding to a highest degree of research freedom and independence. Nevertheless, as the two latter aspects imply the progressive attainment of the required competences and skills, seniority as a researcher is often correlated with increasing age—even if differences in individual career paths allow for considerable variation, to the extent that some experienced researchers may never attain the R4 stage.

Assuming that most undergraduates start formal academic training at the university when they are 18 years old, that degrees normally last 3-4 years, and that master degrees generally have a duration of 1 or 2 years, under normal circumstances most graduate students are expected to enroll in doctoral programs when they are 22-24 years old. Most PhD dissertations take at least 4 years to complete, and it is not unusual that they require 1 or 2 additional years. This would result in an age of 26-30 years at the beginning of the postdoctoral stage, although further delays in the completion of the PhD dissertation, the obtention of postdoctoral grants, jobs outside academia, and/or personal reasons generally result in the age at the start of the first postdoc being closer to 30 years or even later. Given that a minimum of four years of postdoctoral experience are required to transition into R3 stage at the ICP, and that the postdoctoral stage can easily extend four or more additional years, in general it would be reasonable for researchers to attain the R3 stage when they are 30-40 years old, if not later (if some delays apply due to either personal or professional reasons). Taking into account that the attainment of the R3 stage might be through a tenure-track position (with a duration of generally five years), stabilization of an individual as a permanent experienced researcher could be expected to generally take place

between 30-45. In practice, the general scarcity of research funds and particularly of permanent positions in Spain makes this figure to be closer to 40-45 years, even if exceptions do personally occur from case to case. Although in principle it is desirable that the R3 stage ultimately leads to the consolidation as a senior (R4) researcher, there is no standard amount of time required at the ICP to complete such a transition and, as noted above, a researcher may remain indefinitely at the R3 stage. At the very least, several years of experience as an R3 would be required to fully assume a greater leadership in research and higher supervisory responsibilities, implying that the R4 stage would be difficult to attain before 40-50 years in age. These figures are just indicative and may vary considerably, not only depending on the capabilities and effort of each researcher, but also on the basis of job opportunities in different institutions and countries.

The designation of research group heads is a prerogative of the ICP Director and does not automatically imply a R4 status; rather the contrary, it is the R3 or R4 status of new research group heads what determines whether they must be considered junior or senior, respectively. The ICP allows for multiple ways to attain the R4 stage: internal promotion for ICP researchers of R3 type with a permanent contract; direct recruitment by means of a position funded with ICP basal funds; winning a permanent research professor position funded by an external agency (such as ICREA or equivalent); or winning an ERC Advanced Grant. In agreement with the ICP recruitment protocol, internal promotion to transition from the R3 to R4 category is subject to budgetary availability and implies an internal call to which all R3 researchers of the ICP with permanent contract can apply (i.e., not being linked with any particular research line); when only a single ICP researcher applies, the evaluation can be exclusively based on the criteria and mechanisms established for ICP researchers. In contrast, when several ICP researchers apply, a selection process based on the guidelines established in the recruitment protocol will have to be enforced. The ICP would not normally contemplate the possibility to open new R4 positions, unless a research group head needs to be replaced or an ERC grantee needs to be stabilized (see below); in such cases, a selection process based on open, transparent, and merit-based criteria, and in further agreement with the guidelines provided in the ICP recruitment protocol, will be required (unless the position is for the Director, in which case it is the Board of Trustees who must determine the rules of the open selection process). Finally, winning an ICREA research professor position ascribed to the ICP will automatically imply the acquisition of the R4 status, and the same applies to an ERC Advanced Grant, with the only difference that, in the latter case, the duration of the contract (in the modality of distinguished researcher) will be by default limited to the

duration of the grant, and a new open call with the research profile of the grantee will be required to stabilize him or her permanently.

**Mobility.** In agreement with principle 29 of the Charter & Code for researchers, the ICP recognizes the importance of mobility for enhancing the development of a researcher's career. Such mobility normally refers to geography, but can also refer to mobility between disciplines, mobility between the private and the public sector, or even to remote collaboration through digital means. To foster and promoting talent and its employability, the current Spanish Strategy for Science and Technology and Innovation (MINECO, 2014) stresses the need to train human resources devoted to research, development and innovation, including among others measures that recognize and stimulate the temporary mobility of researchers between public institutions and between these and the business section. In particular, mobility is considered essential for establishing partnerships, enabling learning processes, and increasing the use of scientific and technological knowledge, as well as for the generation of new knowledge, new applications, and the development of products and services. This is way the Spanish strategy (MINECO, 2014) aims to eliminate barriers to mobility and in particular seeks to boost international mobility throughout the career of a researcher, in order to guarantee a good professional development of the researchers working within the system.

In agreement with the above, the ICP recruitment protocol aims not to penalize career breaks of researchers due to work outside academia, but rather considers experience in the business sector as a merit that can contribute to a successful evaluation. Similarly, the ICP recruitment protocol considers both short and long stays in foreign institutions as a merit, in recognition of the central role of international exposure for the successful development of a research career. In general, international exposure should be greater during the postdoctoral phase, particularly for researchers that have obtained their PhD or have complete their first postdoc at the ICP. However, postdoc opportunities are constrained by multiple personal and academic factors, so that flexibility is required when evaluating international exposure during the overall course of a particular researcher's career. The evaluation of short and long stays should always take into account not only the quantity (number) and extent (duration), but also the quality of such stays—as measured by multiple indicators, such as: the resulting research outputs; the skills and competences acquired; the prestige of the associated grant (if any); and the renown of the supervisor as well as their research group and institution at an international level.

In the case of current ICP researchers, international mobility is expected to occur at any career stage, although with differences between researchers in training and



more experienced researchers. Both predoctoral (R1) and postdoctoral (R2) researchers are encouraged, while working at the ICP, to maximize their opportunities for international mobility and exposure—as long as this is done within the limits imposed by their respective contracts, with the permission of their immediate supervisors, and is allowed by budgetary availability and or other potential constraints. This can be done by means of short stays (funded by individual grants or research projects in which the researcher participates) and/or by attending international meetings to present contributions (normally with funds linked to their contracts or from research projects in which the researcher participates). Experienced researchers are also encouraged to attend international meetings or to make short stays if this suits well the aims of their research group. However, stays abroad are not essential for the development of their career, and instead they are expected to participate in academic, scientific and/or international committees, advisory boards, etc., which might be done remotely using digital means to a large. Both predoctoral and postdoctoral ICP researchers are further encouraged to continue their careers abroad, in order to gain international experience, before applying to return to the ICP. R3 researchers in tenure-track or with a permanent position at the ICP are also encouraged to make short and medium-duration stays abroad if this considered to significantly improve their career development. In such cases, the ICP will facilitate such stays, by one of the following means: (a) authorizing the stays while they are hired by the ICP, with the only prerequisite that they have the funds to cover the associated expenses; (b) permitting researchers to sign visiting researcher (or equivalent) agreements with foreign institutions, even if they imply using another institutional affiliation, and as long as the researcher has secured funds to cover the expenses and will continue signing with the ICP as their primary affiliation; or (c) facilitating unpaid leaves of absence from the ICP, when the stay requires that the researcher signs with the foreign institution a work contract that is not compatible with their current agreement at the ICP.

**Teaching.** Principle 3 of the European Code for Researchers recognizes teaching as a valuable option within the researchers' career paths but highlights that teaching responsibilities should not be excessive and should not prevent researchers, particularly those in training, from performing research. In agreement with this principle, it is mandatory for ICP researchers with a PhD degree (R2 and R4) to participate in the teaching activities performed by the ICP in several master degrees of the Universitat Autònoma de Barcelona (UAB) up to 20 hours/year. Such teaching activities are part of the duties associated to the researchers' position and do not receive any additional remuneration. In contrast, they imply the official recognition of



the researchers as research collaborators of the UAB and the corresponding teaching certificates to substantiate such research experience in their CV. Predoctoral researchers are also allowed to teach in bachelor degrees under the same conditions up to the maximum number of teaching hours allowed by their respective grants, while, on a voluntary basis, research associates can also teach on master degrees on the same conditions as staff researchers. In compliance with current legislation, the ICP further allows its researchers to take appointments as associate professor at the university to teach in bachelor and/or master degrees. However, in the case of researchers with a competitive contract, this may not be possible depending on the regulations enforced by their external funding agency. These contracts of associate professor have a remuneration, are only part-time, and have been specifically devised for academics with another main job. This allows researchers to make it compatible research at the ICP with teaching at the university, thereby boosting their career prospects (even if in detriment of their scientific production). In recognition of the value of teaching, the latter is one of the merits considered when evaluating job applications to R2-R4 positions according to the ICP recruitment protocol.

**Mentoring and supervision.** Principle 28 of the Charter & Code further states that the career development strategy for researchers must specify the availability of mentors in providing support and guidance for the personal and professional development of researchers. In turn, principle 36 states that researchers in training should establish a structured and regular relationship with their supervisor(s). For the purposes of this document, we will distinguish between mentorship and supervision. The former refers to the guidance provided by researchers to younger and/or less experienced researchers and students, while supervision corresponds to a more formal role that bears additional responsibilities and expectations.

All ICP researchers (and especially experienced researchers of categories R3 and R4) are expected to play a mentoring role to ICP researchers in training, either postdoctoral (R2) or predoctoral (R1), by providing various advice and support. In the case of research group heads and the scientific director, this role extends to all of the researchers of their group or the whole institution, respectively. In turn, mentorship must also be provided by ICP researchers to undergraduate students that collaborate or volunteer in research activities, as well as graduate students that are enrolled in the master degrees in which ICP researchers regularly teach.

Supervision, in turn, is provided by ICP experienced researchers to those students that are formally and directly under their care. Unlike mentorship, as indicated by principle 40 of the Charter & Code, supervision implies a formal recognition of the supervising researcher, who must play an active role in the design of research

activities and career development planning of the supervised researchers, as well as to ensure that the latter is adequately informed about the ethical guidelines that apply to research and publication. In agreement with principles 36 and 40 of the Charter & Code, supervision implies sufficient knowledge and expertise in the field of research, as well as enough time availability and willingness to commit to the task. In particular, it includes (but is not limited to) providing guidance and support, keeping records of and reviewer research progress and findings, giving feedback by various means in both written or oral form, and the establishment of schedules for the delivery of research outputs or other milestones. This supervisory role may be formally shared among various researchers, although one must be designed as the main supervisor and the remaining one(s) as cosupervisor(s). All researchers that hold a PhD (R2 to R4) are expected to be able to adequately supervise master students, although exceptionally PhD students near the completion of their dissertation may act as cosupervisors if this is allowed by the rules of the university. In contrast, the supervision of PhD students must always involve one or more experienced researchers (R3 or R4) that have a permanent position, although postdoctoral researchers (R2) as well as tenure-track researchers (R3) may be involved as cosupervisors. Finally, the supervision of postdoctoral researchers is exclusively reserved to experienced researchers (R3 or R4), particularly (but not exclusively) research group heads, either junior (R3) or senior (R4).

The ICP gives great significance to the supervisory role performed by researchers, being of utmost significance for attesting research independence. Therefore, postdoctoral researchers are urged to perform this task in order to be able to transition toward a more stable position. However, it must be taken into account that supervision involves the establishment of a close working relationship between the supervisor and the trainee, and hence the ICP recognizes that no researcher should be obligated or pushed to supervise anyone against their will. It is the responsibility of researchers in training to establish the required collaborative network to find a supervisor, even though other ICP researchers should adequately mentor the researcher in training to find the most suitable supervisor and provide advice if problems of conflict arise. In the latter case, researchers in training and their supervisors should contact the ICP ombudsperson, who would act as a mediator to try to resolve such problems. If the latter persist or are related to scientific misconduct or other unacceptable practices by any of the parties, the ombudsperson should notify the scientific director and the ICP Steering Committee, the latter being the relevant organ that could take disciplinary measures if required.

**Leadership.** In the same way that any research career development implies the attainment of higher quotes of research independence, experienced researchers should also aim to progressively attain higher degrees of leadership. Both aspects are intimately related, as leadership implies higher independence and is a sine qua non condition for research group heads (and, of course, the director of the institution). Although leadership should not be equated with mentoring and supervision either, these aspects are also tightly related. Leadership styles inevitably vary from one person to another, depending on their personal character, background and charisma. However, the most important characteristic of a true leader would be excelling not at the expense of other members of the team, but rather because of motivating and helping the others to be better than they would be on their own groups. A good leader should therefore be an example for other researchers in their group, and treat them fairly and with respect.

Research leaders are expected to be principal investigators of projects led by their host institution within their field of expertise, supervise PhD dissertations, and frequently publish as last and/or corresponding author, among others. However, team leaders are expected not only to act as such, but also to play a leading role within their field of expertise at the international level. The latter implies being renowned and highly cited among the scholars that devote to the same discipline, and may be reflected in multiple ways, such as delivering key lectures as invited speaker, having invitations to contribute to workshops, being editors in chief or editorial board members of international journals, etc. These examples are not mandatory for research group leaders, but rather some frequent examples among many other possible indicators of leadership. Other aspects more difficult to measure, such as being respected and reputed at an international level, and having an extensive network of international collaborators, are of greatest significance. This may be reflected in the participation in international projects and in the joint publications with researchers outside his own group. Therefore, leadership is not at odds with collaborations, although of course being the principal investigator of transnational projects or the lead author of publications coauthored by multiple experts or research groups from various countries is the best possible reflection of leadership at an international level.

**Continuous training.** According to principles 38 and 39 of the Charter & Code, researchers at any stage should be given the opportunity for professional development by means of access to continuous training in order to update and improve their knowledge, skills and competences. In agreement with these principles, the ICP has an internal policy of continuous training for its personnel, which is not only

restricted to ICP staff but further includes research associates and collaborators. Besides the scientific training provided to R1 and R2 researchers by their corresponding supervisors in the framework of the normal development of their research activities, ICP researchers at any stage have opportunities of continuous training thanks to the attendance to both national and international meetings and workshops (defrayed with competitive research funds), as well as the regular (monthly) organization of talks at the ICP in the framework of the Paleovermut initiative (by which the ICP Director and researchers, particularly those that recently joined the institution, as well as invited speakers from other institutions) report their research results or discuss specific topics related to research. Furthermore, the ICP provides all of its employees with the opportunity to perform free courses each year, in order to foster their continuous training and learning. Some of these courses are intended to all the ICP personnel, whereas other are specifically targeted to researchers (with emphasis on early stage researchers, but extensible to established and even more senior researchers as well).

The courses for employees are generally defrayed with funds available from the Spanish Social Security, and are hence restricted to ICP staff. Traditionally devoted to the acquisition and improvement of foreign languages, during the last years these courses have diversified by further including office software programs, conflict resolution, labor risks, etc. In contrast, the above-mentioned scientificotechnical courses are available for both researchers and research associates, thanks to an agreement with the company Transmitting Science (TS). They consist of advanced courses in life sciences (including varied topics, such as statistics and geometric morphometrics, phylogenetic reconstruction, scientific drawing, etc.) co-organized by the ICP and generally held at the ICP Museum in Sabadell or other nearby locations within the province of Barcelona.

## LITERATURE CITED

- ALLEA (All European Academies), 2017. *The European Code of Conduct for Research Integrity. Revised edition.* ALLEA, Berlin. [https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics\\_code-of-conduct\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf)
- Cameron, I., Synnott, J., Beisiegel, U., O'Carroll, C., Esposito, F., Harrap, K.A., Israel, N., Modjeska, N., Predescu, R., Prijic-Samarzija, S. & Vandeveld, K. (Eds.), 2015. *Report of the Expert Group on 'Shaping the future of the Human Resources Strategy for Researchers - HRS4R'.* European Union. [https://cdn1.euraxess.org/sites/default/files/policy\\_library/experts-report-strengthened-hrs4r-9-2015\\_0.pdf](https://cdn1.euraxess.org/sites/default/files/policy_library/experts-report-strengthened-hrs4r-9-2015_0.pdf)
- Díaz, A., Miñarro, B., Ariño, X., 2018. *Professional Development Programme for Researchers.* Universitat Autònoma de Barcelona. [https://ddd.uab.cat/pub/recdoc/2018/203083/Programa\\_Desenvolupament\\_ProfessionalUAB\\_en.pdf](https://ddd.uab.cat/pub/recdoc/2018/203083/Programa_Desenvolupament_ProfessionalUAB_en.pdf)
- ESF (European Science Foundation), 2009. *Research Careers in Europe Landscape and Horizons.* [http://archives.esf.org/fileadmin/Public\\_documents/Publications/moforum\\_research\\_careers.pdf](http://archives.esf.org/fileadmin/Public_documents/Publications/moforum_research_careers.pdf)
- EU (The Council of the European Union), 1999. Council Directive 1999/70/EC of 28 June 1999 concerning the framework agreement on fixed-term work concluded by ETUC, UNICE and CEEP. Official Journal of the European Communities 42 L 175, 43-48. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31999L0070&from=GA>
- Eurodoc (The European Council of Doctoral Candidates and Junior Researchers), 2011. *Career Skill Measurement for Researchers. Eurodoc Position Paper.* [http://eurodoc.net/oldwebsite/Eurodoc-paper\\_Career-Skills\\_Career-Development-WG\\_Final.pdf](http://eurodoc.net/oldwebsite/Eurodoc-paper_Career-Skills_Career-Development-WG_Final.pdf)
- European Commission, 2005. EUR 21620. *The European Charter for Researchers. The Code of Conduct for the Recruitment.* Office for Official Publications of the European Communities, Luxembourg. [https://www.euraxess.at/sites/default/files/am509774cee\\_en\\_e4.pdf](https://www.euraxess.at/sites/default/files/am509774cee_en_e4.pdf)
- European Commission, 2011. *Towards a European Framework for Research Careers.* Directorate General for Research & Innovation, European Commission. [https://cdn5.euraxess.org/sites/default/files/policy\\_library/towards\\_a\\_european\\_framework\\_for\\_research\\_careers\\_final.pdf](https://cdn5.euraxess.org/sites/default/files/policy_library/towards_a_european_framework_for_research_careers_final.pdf)
- FECYT (Spanish Foundation for Science and Technology), 2017. *Guidelines for the Management of the Mobility of the Foreign Researcher in Spain.* FECYT, Ministerio de Economía, Industria y Competitividad, Gobierno de España.

[https://www.fecyt.es/en/system/files/publications/attachments/2017/09/guiua\\_euraxess\\_ingleus\\_fecyt.pdf](https://www.fecyt.es/en/system/files/publications/attachments/2017/09/guiua_euraxess_ingleus_fecyt.pdf)

MINECO (Ministerio de Economía y Competitividad), 2014. *Spanish Strategy for Science and Technology and Innovation 2013-2020*. MINECO, Gobierno de España. [http://www.ciencia.gob.es/stfls/MICINN/Investigacion/FICHEROS/Spanish Strategy Science Technology.pdf](http://www.ciencia.gob.es/stfls/MICINN/Investigacion/FICHEROS/Spanish_Strategy_Science_Technology.pdf)

OECD (Organisation for Economic Co-operation and Development), 2012. *Transferable Skills Training for Researchers: Supporting Career Development and Research*. OECD Publishing. <https://doi.org/10.1787/9789264179721-en>

OECD (Organisation for Economic Co-operation and Development), 2015. *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development*. The Measurement of Scientific, Technological and Innovation Activities, OECD Publishing, Paris. <https://www.oecd-ilibrary.org/docserver/9789264239012-en.pdf?expires=1569796330&id=id&accname=guest&checksum=47FA7A240D22B3FB13636B295ADB1C1F>

VITAE, 2011. *Researcher Development Framework, Version 2*. Careers Research and Advisory Centre (CRAC). <https://www.vitae.ac.uk/vitae-publications/rdf-related/researcher-development-framework-rdf-vitae.pdf/@download/file/Researcher-Development-Framework-RDF-Vitae.pdf>

Wikipedia contributors, 2019. Career development. In: Wikipedia, The Free Encyclopedia. Wikimedia Foundation, [https://en.wikipedia.org/wiki/Career\\_development](https://en.wikipedia.org/wiki/Career_development) [accessed 5 October 2019]

## **FINAL NOTE**

A first draft of this manual was written by the ICP Director and submitted to consideration by other members of the ICP Steering Committee (Enric Menéndez, Pere Figurola, and Josep Fortuny) on 9 October 2019. A second draft with amendments and additions was approved by the Steering Committee on 5 November 2019, being subsequently sent to the ICP Researchers Commission for review. The final version, with amendments by the Researchers Commission, was approved by the Steering Committee on 3 December 2019, taking immediate effect and being posted to the ICP Transparency webpage—pending the review, eventual amendments and approval by the ICP Board of Trustees when the next meeting takes place.