Postdoctoral Junior Leader Fellowships

Rating criteria

Guidelines and criteria for the evaluation of applications during the interview selection processes for the Postdoctoral Junior Leader fellowships programme

General considerations

Several committees will be formed according to the number of applicants called in for interviews. Each of these committees will be made up of university professors or experts in the evaluated disciplines.

To rate candidates during the interview selection process, evaluators will use a rating scale with three aspects for evaluation, each of which will have a certain weight.

Score

Each evaluated aspect must be rated using one of the values in the scale below:

Rating	Score
Exceptional	8
Excellent	7
Very good	6
Good	5
Average	4
Mediocre	3
Poor	2
Very poor	1

Aspects evaluated

1. Candidate Potential

Summary: *the candidate's potential, paying particular attention to the candidate's* interpersonal skills, *such as clarity and consistency of discourse, expression of ideas, ability to present complex reasoning, teamwork, capacity for independent reasoning, originality, entrepreneurship and leadership will be evaluated.*

In this section, the following will be mainly assessed:

- Originality: capacity to go off the beaten path, coming up with creative proposals or delving into relatively unexplored fields. Originality of both the proposal and formula to achieve the objectives pursued.
- Innovation: capacity to create new knowledge or, in case the proposal includes possible outcomes transferable to industry, to break new ground or find new formulas to create wealth. Use of new technologies or innovative use of already existing technologies. Use of new theoretical approaches to existing phenomena or problems or innovative use of already existing theoretical approaches.
- Feasibility: the candidate puts forth ambitious and realistic ideas and their capacities are in keeping with the scope of their proposal.
- Clarity of exposition: capacity to present complex reasoning and very specific matters clearly and precisely. Appropriate wording including technical terms but avoiding use of overly specialised vocabulary.
- Independence and Leadership: aspects of their track record which make it possible to gauge the candidate's capacity to head a research project will be assessed. In this regard, the candidate's scientific output (publications as primary author, relevant contributions, among others) will be considered. The direction of research work, students' supervision and direction, recognitions (awards, invitations to international lectures) and capacity to obtain resources for their own research will also be assessed.

The weight of this section will be 30%.

2. Motivation and Impact of the Proposal

Summary: *in this section, the conceptual and methodological novelty of the submitted proposal, as well as its impact, understood in its broadest sense—capacity of the submitted project to contribute towards the transformation and improvement of fields such as economy and creation of wealth, society, culture, science, citizens' quality of life, the environment or public policies—will be evaluated.*

In this section, the following will be assessed:

- The submitted proposal must innovative and original, both conceptually and methodologically speaking. The proposals that involve risk and creativity will be looked upon favourably.

- The candidate must justify the interest and feasibility of the research project that they wish to carry out, as well as the suitability of the centre or centres where they propose to do so.

- The interests put forth by the candidate must be consistent and well structured, and the proposed project must be kept within a path with a broader scope. In this regard, the candidate must state—and the evaluator must rate—to what extent carrying out the proposed research project for which they are applying for the fellowship is a necessary step in the right direction.

- Determination to complete the project within the established period of time for the duration of the fellowship or justification for the duration of the project in the case of longer periods.

- The social return on investment—understood in its broadest sense—must also be evaluated: advancement of science and knowledge, creation of wealth and the possibility of transfer to third parties. Likewise, the estimated scientific, social or economic opportunity cost, should the candidate not be able to carry out the proposed project.

- They must be able to demonstrate sound knowledge of the risks involved in the proposed research, as well as identify prevention and mitigation measures for them.

- In this aspect, the potential impact of the fellowship on the candidate's future career will also be evaluated.

The weight of this section will be 20%.

3. Academic and Professional Career

Summary: the *experts will assess the contributions made in the field chosen for the research project presented, as well as the coherence between the candidate's academic education and track record.*

In this section, the following will be assessed:

- Professional and academic experience, scientific findings and output, as well as prior training to carry out their proposal.

- Excellence, relevance and recognition for their contributions to the scientific discipline of their line of research, such as project management, doctoral theses, lectures at con-

gresses, awards and other merits, as well as securing funding to carry out their research.

- Quality and the depth and breadth of their track record in relation to the candidate's possibilities. Thus, particular attention will be given to the years that have passed since they earned their doctoral degree, evaluating both their past achievements and possible future opportunities according to their potential. In this regard, younger candidates or who have made an interruption of their research career due to justified reasons cannot be penalised for having a relatively short track record.

- Stable and well-planned paths throughout their entire career. Should there be changes in their career path, these must be duly justified and supported in a coherent and reasoned manner. In case they have professional experience, its relevance in relation to the proposed project must be explained, if exists.

The weight of this section will be 50%.

Final score during shortlisting

The rating given to candidates during the shortlisting process will also be considered during the interview stage. The standardised rating given during the shortlisting process will be added—as an expert rating—to the rest of the ratings given by the evaluators during the interview to each application.

Committee members will also have access to the ratings and evaluations given to each application by the evaluators who were involved in the shortlisting process. Likewise, they will have additional information regarding the application's position within its group during the shortlisting stage, the number of applications evaluated in this group and the number of shortlisted applications, as well as any other data that the Fellowship Programme Office may consider to be relevant for the evaluation of applications.

To the extent that they deem appropriate, committee members may consider such information when evaluating and rating interviewed candidates.

Interview content

Face-to-face interviews make it possible to detect—based on more subjective, fine and subtle considerations—the quality and consistency of the candidate being evaluated.

During the interview, the candidate's theoretical knowledge may be probed, although this is not the main objective. First and foremost, interviews are used to judge the merit of the application, considering the above-mentioned aspects.

The face-to-face interview seeks to:

- Delve into the information provided in the application, particularly with regard to the applicant's academic, scientific or professional interests.
- Ask about matters which were not included in the application and which the committee considers particularly relevant to evaluate the suitability of the applicant to carry out the proposed research project.
- Evaluate the applicant's scientific and professional potential.
- Evaluate their all-round training, interests, concerns, and curiosity for the social, scientific, economic, cultural, or artistic context—although not directly related to the research project.
- Evaluate their personal and scientific maturity, their motivation to complete the proposed project and their capacity to clearly express their ideas and firmly defend them.

Formal aspects

- Each interview will last approximately 30 minutes.
- The evaluators comprising the committee will not introduce themselves to the candidate.
- A representative of "la Caixa" Foundation will begin the interview which, in all cases, will start off by giving the floor to the applicant to briefly summarize their research proposal in 10 minutes. Then, the other committee members will ask the questions that they deem relevant in order to properly assess the application.
- Interviewers should not ask questions about topics already discussed in the application, unless they are to clarify some aspects.
- Language: interviews will be conducted entirely in English.
- Committees must try to observe the established schedules and be as punctual as possible with the candidates called in for interviews.

  There are no established protocols with regard to use of the formal form of address or the need to shake hands before or after the interview. These are aspects that are left to the discretion of the committee or the spontaneity of the candidates. Nevertheless, it goes without saying that the interviews must be characterized by their formality, propriety and the relevance of the questions.

Face-to-face assessment process by committees

PROCEDURES

Introduction

This document sets out the procedure for evaluating and selecting candidates in the face-to-face stage by assessment committees.

The objective of this system is to ensure maximum efficiency and objectivity in the assessment of candidates, eliminating, as far as possible, the effect of bias in scorings and minimising the possibility that an expert's is determined by not strictly technical factors.

In this regard, the system established proposes:

1. Eliminating bias and scatter in the score by the same expert.
2. Trigger alarms if there is a significant inconsistency between experts' scores from the same committee for a single candidate.
3. Review the scores of candidates for whom there are significant differences between expert assessments.
4. Weigh for each candidate the scores of the various experts in relation to their degree of expertise with the subject evaluated.
5. Incorporate the previous evaluation of the experts who have scored each applicant in the remote assessment process.
6. Rescale the scores to be presented, after the previous procedure, following a scale between 1 and 8.

Score

Experts may indicate, prior to the actual assessment, their level of expertise with the discipline that corresponds to the projects submitted by each candidate of their committee.

Experts shall rate the various aspects of a candidate's application during the face-to-face assessment sessions.

The representative of "la Caixa" Foundation will be in charge of entering the scores from all the experts from their committee for each candidate into a database. Moreover, the final marks generated in the remote assessment process will be included. The system will consider the various levels of weighting of each aspect evaluated and arrive at a primary score for each candidate ($mark_c$) resulting from the calculation of the average mark of the scores from all experts from the same committee for a single candidate.

Standardisation

The standardisation of scores by one and the same expert in relation to all candidates he or she has evaluated will be performed according to the following procedure:

- The expert's mean mark will be calculated or that of the scores drawn from the remote assessment process ($mean_p$):

$$mean_p = \frac{\sum_{c=1}^{n} mark_{c,p}}{n}$$

Where,
p = expert P or remote assessment
n = number of the committee's candidates
mark = numerical score obtained by the candidate, resulting from the scores in the various sections, by that expert.
c = candidate C

- The standard deviation of that same expert or remote assessment in regard to all of that committee's candidates:

$$standard\ deviation_p = \sqrt{\frac{\sum_{c=1}^{n}(mark_{c,p} - mean_p)^2}{n-1}}$$

- Finally, each expert's or remote assessment scores for each candidate evaluated are standardised:

$$new\ mark_{c,p} = \frac{mark_{c,p} - mean_p}{standard\ deviation_p}$$

The ratings drawn for candidates from the remote assessment phase have previously been standardised for all candidates associated with remote assessment panels associated with the same committee. This second standardisation, therefore, will be on previously standardised values.

Alarms

In the event that, once each expert's marks have been standardised, there appears, for the same candidate, two or more scores by different experts with significant divergences (see below), the system displays an alarm for candidates for whom the divergence is detected.

The remote assessment marks are not taken into account to activate alarms.

The system will only display alarms for those candidates who have been designated as reserves or are four positions above or below the reserve candidates.

The following formula will be used to calculate whether a divergence is significant:

$$If\ max_p(new\ mark_{c,p}) - min_p(new\ mark_{c,p}) > 2$$

Review

The candidates of this restricted group with significant divergences will be discussed by the committee at its final meeting and evaluated again by each expert, who can then maintain or change their original score.

The new scores will be entered into the system again and the ranking resulting from them will be the final one for awarding fellowships by that committee.

Weighting according to expertise with the discipline assessed

The experts of each committee may indicate, via the online application that gives them access to applications, their level of expertise with the discipline of the candidacy evaluated

Each expert can choose between two possible levels of expertise:

LEVEL 1: Their knowledge corresponds, generically, with the field of the discipline evaluated and their evaluation can therefore be considered that of an expert. The remote assessment mark is always considered that of an expert.

LEVEL 2: Their knowledge does not correspond, generically, with the field of the discipline evaluated; therefore, their evaluation cannot be considered strictly that of an expert, but it is sufficient taking into account the characteristics of the call.

The final score of an application is the result of applying different levels of weighting when the levels of expertise indicated by experts evaluating the application do not coincide.

In particular,

- If, in addition to the remote assessment mark, any of the experts indicate a higher level of expertise with regard to a candidate evaluated, then an additional point of weighting is divided between the remote assessment mark and these experts with greater expertise:
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$$new\ mark_c = \sum_{p=1}^{m} new\ mark_{c,p} * \frac{weight_{c,p}}{\sum_{p=1}^{m} weight_{c,p}}$$

Example 1:

A panel is comprised of 5 experts: p_1, p_2, p_3, p_4, p_5

Experts 3 and 4 have indicated a high level of expertise with the discipline of a certain candidate evaluated, which gives a weighting value of the score for each evaluator and a total value of the sum of all weights:

$p_1 =$ LEVEL 2 → $weight_{c,1} = 1$
$p_2 =$ LEVEL 2 → $weight_{c,2} = 1$
$p_3 =$ LEVEL 1 → $weight_{c,3} =$1.33
$p_4 =$ LEVEL 1 → $weight_{c,4} = 1.33$
$p_5 =$ LEVEL 2 → $weight_{c,5} = 1$
$p_{remote\ assessment} =$ LEVEL 1 → $weight_{c,remote\ assessment} = 1.33$

Therefore,

$$\sum_{p=1}^{m} weight_{c,p} = 7$$

So the final weighting of each expert's score and from the remote assessment process will be:

$$\frac{weight_{c,1}}{\sum_{p=1}^{m} weight_{c,p}} = 0.1429$$

$$\frac{weight_{c,2}}{\sum_{p=1}^{m} weight_{c,p}} = 0.1429$$

$$\frac{weight_{c,3}}{\sum_{p=1}^{m} weight_{c,p}} = 0.19$$

$$\frac{weight_{c,4}}{\sum_{p=1}^{m} weight_{c,p}} = 0.19$$

$$\frac{weight_{c,5}}{\sum_{p=1}^{m} weight_{c,p}} = 0.1429$$

$$\frac{weight_{c,remote\ assessment}}{\sum_{p=1}^{m} weight_{c,p}} = 0.19$$

Example 2:

A panel is comprised of 5 experts: p_1, p_2, p_3, p_4, p_5

No expert has indicated a high level of expertise with the discipline of a certain candidate evaluated, which results in a weighting value of the score for each expert and a total value of the sum of all weights:

$p_1 =$ LEVEL 2 → $weight_{c,1} = 1$

p_2 = LEVEL 2 → $weight_{c,2} = 1$
p_3 = LEVEL 2 → $weight_{c,3} = 1$
p_4 = LEVEL 2 → $weight_{c,4} = 1$
p_5 = LEVEL 2 → $weight_{c,5} = 1$
$p_{remote\ assessment}$ = LEVEL 1 → $weight_{c,remote\ assessment} = 2$

Therefore,

$$\sum_{p=1}^{m} weight_{c,p} = 7$$

So the final weighting of each expert's score and of the remote assessment process will be:

$$\frac{weight_{c,1}}{\sum_{p=1}^{m} weight_{c,p}} = 0.1429$$

$$\frac{weight_{c,2}}{\sum_{p=1}^{m} weight_{c,p}} = 0.1429$$

$$\frac{weight_{c,3}}{\sum_{p=1}^{m} weight_{c,p}} = 0{,}1429$$

$$\frac{weight_{c,4}}{\sum_{p=1}^{m} weight_{c,p}} = 0.1429$$

$$\frac{weight_{c,5}}{\sum_{p=1}^{m} weight_{c,p}} = 0.1429$$

$$\frac{weight_{c,remote\ assessment}}{\sum_{p=1}^{m} weight_{c,p}} = 0.2857$$

Rescaling the score

Proceed as follows in order to present each candidate's score on a scale from 1 to 8:

1) Rescale all the scores to obtain a new provisional mark ($new\ mark2_c$), located between 0 and 1:

$$new\ mark2_c = \frac{new\ mark_c - min_c(new\ mark_c)}{max_c(new\ mark_c) - min_c(new\ mark_c)}$$

That is, the lowest score is subtracted from each candidate's score and divided by the value of the difference between the highest and lowest score.

2) All scores between the two values represented by the original score ($mark_c$) of the worst and the best scored candidate are situated within one and the same committee ($min\ mark.$ and $max\ mark$, respectively).

   To obtain these two values, calculate, for each candidate, the score resulting from the direct, non-normalised and non-weighted by expertise of the experts mean, of the scores of each expert for each candidate.

   To obtain the final mark ($final\ mark_c$) for each candidate:

$$final\ mark_c = new\ mark2_c * (max\ mark - min\ mark) + min\ mark$$

   where:

   $max\ mark$ = $mark_c$highest
   $min\ mark$ = $mark_c$lowest

   In this way, the highest original score ($max\ mark$) will be assigned to the candidate with the highest final standardised, revised and weighted score, and the lowest ($min\ mark$), to the last place candidate in this same score.

Specifications for the INPhINIT programme (Committees)

In the case of the INPhINIT fellowships programme, each subcommittee will have a pre-allocated number of fellowships to be awarded. Once the scores for each subcommittee have been standardized on the basis of the standardization procedure detailed above, there will be nominated the candidates awarded with a fellowship and subsequently a single waiting list will be generated of candidates who have not obtained a fellowship from the n subcommittees under each main committee.

In the event of a resignation, the fellowship will be covered with the best rated candidate of this waiting list, according to the standardized score obtained in the subcommittee. In case of a tie among waiting list candidates, this tie will be resolved based on the standarized score obtained by the candidate in the preselection phase.

Feedback for the candidate

In order to provide adequate feedback to the candidate on the assessment of their candidacy during the face-to-face assessment process, their qualifications for each criterion will be analysed for comparison with the qualifications of the other candidates of their panel.

This feedback will not take into account the remote assessment mark, since interviewed candidates will have already obtained the corresponding feedback from the remote assessment process.

The following steps shall be followed to perform this process:

1. Standardise the mark of each criteria for each candidate for each expert according to the following procedure:

   - Calculate the expert's mean mark for each criterion ($mean_{p,k}$):

$$mean_{p,k} = \frac{\sum_{c=1}^{n} mark_{c,p,k}}{n}$$

Where,
p = expert P
n = number of candidates from the committee.
mark = numerical score obtained by the candidate, resulting from the scores in the various sections, by that expert.
c = candidate C

k = criterion K

   - The standard deviation of that same expert for that same criterion is calculated compared to all the panel's candidates:

$$standard\ deviation_{p,k} = \sqrt{\frac{\sum_{c=1}^{n}(mark_{c,p,k} - mean_{p,k})^2}{n-1}}$$

   - Finally, each expert's scores for each candidate evaluated are standardised:

$$new\ mark_{c,p,} = \frac{mark_{c,p,k} - mean_{p,k}}{standard\ deviation_{p,k}}$$

2. The various experts' marks for each criterion are averaged to calculate the corresponding mark for each candidate:

$$new\ mark_{c,k} = \sum_{p=1}^{m} new\ mark_{c,p,k} * \frac{1}{m}$$

3. When the marks for each candidate for each criterion are available, calculate the quartiles (percentages of 25%, 50% and 75%) of each criterion, which are named $Q_1, Q_2 Q_3$ respectively. The quartiles are those numbers that having an orderly list are situated in the 25%, 50% and 75% positions respectively of that list.

4. Finally, a number is assigned to each candidate for each criterion indicating in which segment they are found:

   - If $new\ mark_{c,k} \leq Q_1$: $segment_{c,k} = 4$,
   - If $Q_1 \leq new\ mark_{c,k} \leq Q_2$: $segment_{c,k} = 3$,
   - If $Q_2 \leq new\ mark_{c,k} \leq Q_3$: $segment_{c,k} = 2$,
   - If $Q_3 \leq new\ mark_{c,k}$: $segment_{c,k} = 1$

Note: The algorithms, procedures and formulas used in this document have been prepared by **Miquel Picallo,** intern of "la Caixa" (North America, 2011).