



Decree of the Rector n. 616 of 25/08/2023
Competition for awarding 1 research grant at the University of Udine

DISCLAIMER:

The official and legally binding call for applications is in Italian only. This document cannot be used for legal purposes and is only meant to provide information in English on the call for applications (Decree of the Rector n. 616 of 25/08/2023). Please refer to the official call published on: <https://www.uniud.it/it/albo-ufficiale>

Any change and integration will be made available on the above mentioned web page. Therefore, no personal written communication regarding the examination date and/or competition results shall be provided to applicants.

Annex 1

Competition announcement for the assignment of 1 research grant at the University of Udine, entitled "Statistical methods for the analysis and prediction of sport events" SSD: SECS-S/01 (principal investigator, Valentina Mameli)

Research grant funded by the resources of the project PRIN 2022 - Prot. n. 2022R74PLE

Art. 1

A selection procedure is hereby launched for the award of 1 research grant at the University of Udine, as identified in Attachment A which constitutes an integral part of the present announcement.

The research grant is linked to the research project and is subject and conditioned upon the relative funding.

The fellowship may be renewed, in compliance with Art. 22, Law No. 240 of 30 December 2010 (as in the text in force before the implementation of the Conversion Law of the D.L. 36/2022, L. 79/2022), Law No. 11 of 27 February 2015, and the current regulations of the University of Udine for awarding research grants, issued with the Rector's Decree No. 182 of 31 March 2021. The renewal is subject to the scientific coordinator's positive assessment of the researcher's activities, an adequate scientific rationale, and a corresponding financial covering.

The research fellowship does not give rise to any right with regards to accessing University posts.

Any personal communication to candidates related to this selection will be sent exclusively to the email address indicated when registering for the selection, as mentioned in Art. 5.

Art. 2

The research grant described in this competition announcement and the required qualifications to apply for the position are identified in Attachment A. The lack of the admission requirements leads to the automatic exclusion from the competition procedure.

Possession of a PhD or equivalent degree obtained abroad or, only for the interested areas, of a medical specialization accompanied by an adequate scientific production, constitutes a preferential qualification for awarding the research fellowship of this selection, if it has not been provided as a mandatory requirement.



For the only purpose of the admission to the competition, the Examining Board (Art. 7) shall assess the equivalence of the qualification obtained abroad, except for the evaluation of the medical specialization qualification to which Article 38 of the Legislative Decree 165/2001 and subsequent modifications and additions, and EU regulations on the matter, shall be applied.

The Examining Board will proceed to the evaluation of the qualification obtained abroad according to the documentation attached to the application form. The Examining Board may exclude the candidate if the submitted documentation does not provide sufficient information for the assessment. Therefore, applicants must enclose all the documentation in their possession relating to their qualification in order to provide the Examining Board with sufficient information for assessment.

Candidates holding a qualification issued by a **European Research Area country**, if successful, must submit, if not already attached to the application form one of the following options:

- Supplement Diploma in English issued by the competent University.
- CIMEA Certificate of comparability of the foreign qualification, issued by CIMEA (Information Centre on Academic Mobility and Equivalence) via the "diplome" service at <https://cimea.diplome.eu/udine/#/auth/login>

Candidates holding a qualification issued by a **non-European Research Area country**, if successful, must submit, if not already attached to the application form one of the following options:

- Declaration of the on-site value of the qualification and the certificate relating to the degree with examinations and grades. A certificate in a language other than Italian or English must be accompanied by an official translation into one of these languages (certified by the competent diplomatic-consular authority or certified by a court in Italy).
- CIMEA Certificate of comparability of the foreign qualification, issued by CIMEA (Information Centre on Academic Mobility and Equivalence) via the "diplome" service at <https://cimea.diplome.eu/udine/#/auth/login>

If the Supplement Diploma or the statement/attestation of comparability are not available when signing the contract, the applicant must demonstrate that he/she has requested the documentation and submit it as soon as possible.

Any exclusion from the selection procedure due to lack of eligibility requirements, absence of required documents, failure to sign the selection application or submission of the selection application in a manner different from what is provided for in this call for applications will be communicated to applicants exclusively at the email address indicated in the application form.

Art. 3

The research grant referred to in this call for applications cannot be awarded:

- a. to employees of Universities and the entities referred to in Article 22, section 1, of Italian Law no. 240 of 30 December 2010 (in the text prior to the reform introduced by Law no. 79 of 29 June 2022);
- b. to those who have already been awarded research grants pursuant to Italian Law no. 240 of 30 December 2010 (prior to the reform introduced by Law no. 79 of 29 June 2022) for the maximum period provided by law, even if not continuously, excluding the period in which the grant was used in conjunction with the doctorate, up to the legal term of the relative course;
- c. to those who have already benefited from research grants and fixed-term researcher contracts provided for, respectively, in Articles 22 and 24 of Italian Law no. 240 of 30 December 2010 (in the text prior to the reform introduced by Law no. 79 of 29 June 2022), for a total of 12 years, even if not consecutive;



- d. to anyone who has a degree of kinship or affinity, up to and including the fourth degree, with:
- the Rector, the Director General or a member of the Board of Directors of the University of Udine;
 - the scientific supervisor or a professor/researcher belonging to the department or organisation hosting the research grant in question.

The research grant provided for in this call for applications cannot be combined:

- a) with scholarships of any kind, except for those granted by Italian or foreign institutions to supplement, by means of stays abroad, the fellow's training or research activities;
- b) with other research grants;
- c) with an employment relationship, even if part-time, without prejudice to the relevant provisions for employees of public administrations.

The grant awarded under this call for applications is also incompatible with simultaneous attendance at university degree courses, either Bachelor's degree or Master's degree courses, research Doctorates with scholarships and medical specializations, in Italy or abroad.

Art. 4

Applicants must enclose with their application, under penalty of exclusion, the following documents:

- a) their professional scientific CV, highlighting the candidate's aptitude for carrying out and implementing the research project (Attachment A);
- b) their identity card, their passport or any other identification document¹;
- c) (for candidates with a foreign qualification only) certification or self-certification of both the academic qualification required for the admission to the selection, and of the exams (with evaluation) took during the period of study abroad, and of any other document that can be useful to the evaluation of the degree by the Examining Board.

Applicants can attach to the application, publications and any other certification considered useful to demonstrate the qualification based on the research program (Attachment A) and to certify any research activity accomplished at public or private institutes (indicating the starting and ending date and the duration).

The documents and qualifications mentioned above must be submitted in Italian or English. Those that are not as requested will not be evaluated. Documents originally written in a language other than Italian or English must come with a translation in Italian or English, that the candidate will do on its own responsibility. The translation can be an abstract concerning the thesis.

Italian and Community candidates wishing to submit qualifications referring to conditions and facts attested by Public Administrations must proceed exclusively with self-certification.

Non-EU citizens legally residing in Italy may self-certify only data that can be verified or certified by Italian public bodies. They may also use declarations in lieu when provided for by an international convention between Italy and the declarant's country of origin.

Non-EU citizens not residing in Italy cannot self-certify.

Only the qualifications possessed by the candidate on the date the application form is submitted and submitted in accordance with the procedures set out in Article 5 will be assessed.

¹ Please be aware that the residence permit is not an identification document.



Failure to submit mandatory documents provided for in this article will constitute grounds for exclusion from the selection.

Art. 5

The submission of the applications for the present call starts on September 7, 2023 at 2:00 pm (Italian time) and ends on October 31, 2023 at 2:00 pm (Italian time).

The application to take part in the selection must be completed, under penalty of exclusion, using the appropriate online procedure, available at the link <https://pica.cineca.it/>. The procedure involves an applicant registration step, for those who do not already have an account, and then an application completion step.

Once completed, the online application must be signed in the manner described in the online procedure (manual signature with attached identity document or digital signature), under penalty of exclusion from selection. The application does not have to be signed if you access the above-mentioned online procedure using your SPID ID.

The qualifications referred to in Article 4 must be attached to the application in .pdf format. Individual .pdf files may not exceed 30MB.

The application for participation in the selection is automatically sent to the University of Udine with the definitive closing of the online procedure.

The University Administration:

- is not responsible if it is impossible to read the submitted documentation in electronic format due to damaged files;
- shall not accept or take into consideration qualifications or documents received in paper form or by any means other than what is specified in this article.

Reference to documents or publications already submitted in connection with other competitions is not allowed.

The Administration is not responsible for any missing document or communication because of inaccurate indication of residence and/or address submitted by the candidate during the application. Also, the Administration is not responsible if the candidate has not communicated changes in this information, or has communicated them too late. The Administration is also not responsible for any postal or telegraphic problems not attributable to the Administration itself.

Applicants are advised not to wait until the last few days before the closing date to submit their application. The University accepts no responsibility for any malfunctions due to technical problems and/or overloading of the communication line and/or application systems.

Art. 6

The selection procedure is held in accordance with the modality indicated in Attachment A.

The test will aim to assess the general preparation, experience and aptitude for research of the candidate. It will consist in the evaluation of the professional scientific curriculum, of the publications and qualifications presented, and of the interview, where foreseen.



Art. 7

The Examining board for the competition is identified in Attachment A of the present competition announcement, of which it is an integral part.

At its first meeting, the Examining board shall appoint its President and Secretary, and establish the criteria and methods for evaluating the qualifications and the interview, where foreseen.

The results of the qualifications assessment must be disclosed to applicants during the interview, where foreseen.

The Examining board can award a maximum of 100 points (one hundred out of one hundred) to the selection.

At the end of the evaluation procedure, the Examining board shall formulate the general merit list based on the overall score of each candidate, and draw up the minutes of the whole competition procedure.

Based on the ranking list, the assignment is awarded to candidates who have obtained a minimum overall score of 70/100 (seventy out of one hundred).

The Examining board's judgement is final.

The ranking list will be made public exclusively through publication on the University's official website.

Applicants will not be notified of the outcome of the evaluation.

Those who do not declare their acceptance of the research grant and do not present themselves at the research centre within the deadline communicated by the latter, even if not formally, shall lose the right to receive it. Exceptions to this term will only be granted in cases of documented force majeure.

Art. 8

The research activity cannot be started before signing the contract defining the terms and conditions of the collaboration.

The activity covered by the research grant must have the following characteristics:

- a) it must be carried out as part of the research programme covered by the grant and not be a merely technical support to it;
- b) it must have a close connection with the realization of the research program for which the winner of the grant has been awarded the contract;
- c) it must be continuous and, in any case, temporally defined, not merely occasional, and in coordination with the overall activity of the University;
- d) it must be carried out autonomously, solely within the limits of the programme prepared by the programme supervisor, without predetermined working hours.

The researcher is required to submit a detailed written report on the work carried out and the results achieved, accompanied by the opinion of the scientific supervisor, to the reference organisation at the intervals set out in the contract. The researcher must also submit interim reports and timesheets, if requested by the reference organisation.

Either the fellow or the reference organisation may withdraw from the contract.



The reference organisation may terminate the contract not only in the cases referred to in Article 9, sections 2 and 3, of the "Internal rules for awarding research grants pursuant to law 240 of 30 December 2010" of the University of Udine, but also in the event the research project and therefore the financial coverage on which the research grant is based cease to exist.

Art. 9

The following legal dispositions shall apply to the grant referred to in this call for applications:

- for tax matters, the provisions of Article 4 of Italian Law no. 476 of 13 August 1984, as subsequently amended and supplemented;
- for social security matters, the provisions of Article 2(26) *et seq.* of Italian Law no. 335 of 8 August 1995, as subsequently amended and supplemented;
- for mandatory maternity leave, the provisions of the Italian Ministerial Decree of 12 July 2007;
- with regard to sick leave, the provisions of Article 1(788) of Italian Law no. 296 of 27 December 2006 and subsequent amendments.

During the period of mandatory maternity leave, the allowance paid by INPS according to Art. 5 of the Italian Ministerial Decree of 12 July 2007 is supplemented by the University up to the full amount of the research grant.

The grant will be paid in monthly instalments.

Art. 10

The data collected as part of the procedure referred to in Art. 5 are necessary to properly manage the selection procedure, for any subsequent management of the research grant and for purposes related to managing services provided by the University. The University of Udine is the Data Controller. At any time, the data subject may request access, rectification and, depending on the University's institutional purposes, cancellation and restriction of processing or oppose the processing of their data. The data subject can always lodge a complaint with the Italian Data Protection Authority. The complete disclosure is available on the University of Udine website in the "Privacy" section, accessible from the home page www.uniud.it Direct Link: <https://www.uniud.it/it/it/pagine-speciali/guida/privacy>

Art. 11

For all matters not expressly mentioned in this call for applications, refer to the regulations in force on the subject cited in the introduction and to the "Internal rules for awarding research grants pursuant to Italian Law no. 240 of 30 December 2010" of the University of Udine, issued by Rector's Decree no. 182 of 31 March 2021.

Art. 12

The procedure supervisor is Dr Sandra Salvador, Head of the Research Services Area of the University of Udine.

The Responsible office at the University of Udine is "Area Servizi per la Ricerca - Ufficio Formazione per la Ricerca", via Mantica n. 31 - 33100 Udine, Italia.

To request information about the call for applications, please complete the following form available on the University of Udine website:

https://helpdesk.uniud.it/SubmitSR.jsp?type=req&accountId=universityofudine&populateSR_id=42105



Attachment A

Responsabile scientifico della ricerca / Principal investigator:

Nome e cognome / Name and surname: Valentina Mameli
Qualifica / Position: Professoressa Associata / Associate Professor
Dipartimento / Department: Scienze Economiche e Statistiche (DIES) / Economics and Statistics
Area MUR / Research field: 13 - Scienze economiche e statistiche
Settore concorsuale e Settore scientifico disciplinare / Scientific sector: 13/D1; SECS-S/01 - Statistica

Titolo dell'assegno di ricerca / Topic of the research fellowship "assegno di ricerca":

I bandi sono consultabili dal sito dell'Ateneo, del MUR e di Euraxess / The calls are available on the University, MUR and Euraxess websites

Testo in italiano:

Metodi statistici per l'analisi e la previsione di competizioni sportive.

Text in English:

Statistical methods for the analysis and prediction of sport events.

Obiettivi previsti e risultati attesi del programma di ricerca in cui si colloca l'attività dell'assegnista di ricerca / Foreseen objectives and results of the research programme performed by the research fellow "assegnista di ricerca":

I bandi sono consultabili dal sito dell'Ateneo, del MUR e di Euraxess / The calls are available on the University, MUR and Euraxess websites

Testo in italiano:

Il presente progetto di ricerca fa parte del programma PRIN 2022 - "Statistical Models and AlgoRiThms in sports (SMARTsports)".

L'obiettivo principale del programma PRIN consiste nello sviluppo di nuovi modelli statistici, metodi di analisi e data mining e strumenti di apprendimento algoritmico/statistico da applicare a diversi campi dello sports analytics. A titolo di esempio, si possono citare i seguenti argomenti: analisi delle prestazioni, identificazione dei fattori di successo, strategie di gioco ottimali, previsione dei risultati delle partite (Baio e Blangiardo, 2010) e misurazione della percezione in contesti sia professionali che amatoriali con atleti normodotati e disabili.

L'assegnista sarà inserito nell'attività di ricerca del programma PRIN e si concentrerà principalmente sui temi e gli obiettivi elencati di seguito.

Il primo obiettivo riguarda il reperimento, la gestione e l'organizzazione degli insiemi di dati di ambito sportivo. Queste informazioni possono essere ottenute in vari modi. In particolare, i dati possono essere raccolti durante un evento sportivo, sia manualmente che attraverso dispositivi tecnologici. Inoltre, i dati possono provenire da questionari somministrati agli atleti, raccolti durante le sessioni di allenamento e prima e dopo le gare, oppure da altre fonti, come agenzie di scommesse e siti web ufficiali delle Federazioni. Gli insiemi di dati possono quindi avere caratteristiche diverse: registrazioni di singoli eventi, come i dati play-by-play (pbp), statistiche di base, opinioni di esperti e dati di misurazione. Il recupero e la gestione di questi dati richiedono in genere competenze informatiche di alto livello atte a gestire il web-scraping, i database relazionali e non relazionali, il data warehousing e la creazione di codici e procedure standard di raccolta, pulizia, manipolazione e analisi dei dati.

Inoltre, la ricerca mira a sviluppare metodi e modelli statistici adatti alla misurazione delle prestazioni, all'identificazione dei fattori di successo e delle strategie di gioco ottimali e alla previsione dei risultati degli eventi sportivi (Albert et al., 2017). Da un punto di vista metodologico, tali attività di ricerca si concentreranno sulle tecniche statistiche esplorative e sulla visualizzazione dei dati, sui metodi di



apprendimento non supervisionato relativi alla riduzione dei dati, sulle tecniche di clustering e sull'identificazione di pattern, sui metodi di apprendimento statistico e sui modelli statistici complessi, con particolare enfasi sui metodi bayesiani (Egidi e Gabry, 2018), e sui metodi avanzati di previsione e classificazione.

L'attività di ricerca connessa all'assegno potrebbe riguardare uno o più dei seguenti campi di applicazione:

- **Basketball analytics.** L'attività di ricerca riguarda lo sviluppo di modelli statistici per l'analisi e la previsione delle prestazioni. Per quanto riguarda l'analisi delle prestazioni, la ricerca si concentrerà sulla valutazione delle prestazioni delle squadre (Sarlis e Tjortjjs, 2020), esplorando ulteriori generalizzazioni del modello RAPM (Grassetti et al., 2020 e Hvattum, 2019). Tra le possibili generalizzazioni, la ricerca si concentrerà sullo studio di diverse specificazioni stocastiche degli effetti dei giocatori e delle formazioni (Kumbhakar et al., 2020) e sulla valutazione di una aggregazione alternativa dei dati pbp basata su intervalli di tempo regolari (Ekstrøm e Jensen, 2023). L'attività di ricerca in questo ambito dovrebbe prevedere anche le collaborazioni con le squadre di basket locali (APU Udine e "Zio Pino" Baskin).
- **Previsione dei record.** L'obiettivo è l'applicazione della teoria dei valori estremi e di procedure di calibrazione avanzate per valutare la probabilità di record futuri e valutare l'esistenza di record definitivi, che è di interesse negli sport individuali come l'atletica e il nuoto, ma anche nella ricerca sui limiti della capacità del corpo umano (Fonseca and Giummolè, 2019).
- **Classifica degli atleti e delle squadre.** Partendo dai lavori esistenti (Bozzo et al., 2020 e Franceschet et al., 2017), verranno proposti nuovi approcci di ranking per la valutazione delle prestazioni time-aware, concentrandosi sia sulle caratteristiche teoriche delle procedure sia sulla possibilità di applicazione ad alcuni sport, come il calcio o la pallavolo. Queste nuove procedure di rating e ranking possono essere applicate, utilizzando modelli statistici avanzati, per prevedere i risultati delle partite e l'esito finale di un torneo.

Bibliografia

- Albert, J., Glickman, M.E., Swartz, T.B. and Koning, R.H. eds., 2017. Handbook of statistical methods and analyses in sports. CRC Press.
- Baio, G. and Blangiardo, M., 2010. Bayesian hierarchical model for the prediction of football results. Journal of Applied Statistics, 37(2), pp.253-264.
- Bozzo, E., Vidoni, P. and Franceschet, M., 2020. A parametric family of Massey-type methods: inference, prediction, and sensitivity. Journal of Quantitative Analysis in Sports, 16(3), pp.255-269.
- Egidi, L. and Gabry, J., 2018. Bayesian hierarchical models for predicting individual performance in soccer. Journal of Quantitative Analysis in Sports, 14(3), pp.143-157.
- Ekstrøm, C.T. and Jensen, A.K., 2023. Having a ball: evaluating scoring streaks and game excitement using in-match trend estimation. AStA Advances in Statistical Analysis, 107(1-2), pp.295-311.
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- Franceschet, M., Bozzo, E. and Vidoni, P., 2017. The temporalized Massey's method. Journal of Quantitative Analysis in Sports, 13(2), pp.37-48.
- Grassetti, L., Bellio, R., Di Gaspero, L., Fonseca, G. and Vidoni, P., 2021. An extended regularized adjusted plus-minus analysis for lineup management in basketball using play-by-play data. IMA Journal of Management Mathematics, 32(4), pp.385-409.
- Hvattum, 2019. A comprehensive review of plus-minus ratings for evaluating individual players in team sports. International Journal of Computer Science in Sport, 18(1), 1-23.
- Kumbhakar, S.C., Parmeter, C.F. and Zelenyuk, V., 2020. Stochastic frontier analysis: Foundations and advances I. Handbook of production economics, pp.1-40.
- Sarlis, V. and Tjortjjs, C., 2020. Sports analytics - Evaluation of basketball players and team performance. Information Systems, 93, p.101562.



Text in English:

This research project is part of the PRIN 2022 - "Statistical Models and AlgoRiThms in sports (SMARTsports)" program.

The main aim of the PRIN program consists in developing new statistical models, data analysis and data mining methods, and algorithmic/statistical learning tools to be applied to different topics in sports analytics. As an example, the following topics can be mentioned: performance analysis, identification of success factors, optimal game strategies, forecasting matches' results (Baio and Blangiardo, 2010), and perception measurement concerning both professional and amateur contexts with able-bodied and disabled athletes.

The research fellow will be included in the research activity of the PRIN program and will mainly focus on the themes and objectives listed below.

The first objective concerns the retrieval, handling, and organization of datasets. Sports data can be obtained through different data-collecting procedures. Data may be collected during a sports event, both manually and recorded by technological devices. Also, data may come from questionnaires administered to athletes collected during training sessions and before and after the competitions or collected from other sources like betting agencies and official Federations' websites. Hence datasets can have different characteristics: single event recordings, such as play-by-play (pbp) data, basic statistics, experts' opinions, and measurement data. Retrieval and management of such data typically require high-level computer skills to deal with web-scraping, relational and non-relational databases, data warehousing, and creating codes and standard data collection, cleansing, manipulation, and analysis procedures.

Subsequently, the research aims at developing statistical methods and models suitable for performance measurement, identifying success factors and optimal game strategies, and forecasting sports event outcomes (Albert et al., 2017). From a methodological point of view, such research activities will focus on exploratory statistical techniques and data visualization, unsupervised learning methods related to data reduction, clustering techniques and pattern identification, statistical learning methods, and complex statistical models, with emphasis on Bayesian methods (Egidi and Gabry, 2018), and advanced methods for prediction and classification.

The research activity connected with the grant could regard one or more of the following fields of application:

- Basketball analytics. The research activity concerns the development of statistical models for performance analysis and prediction. Regarding performance analysis, the research will focus on evaluating teams' performance (Sarlis and Tjortjjs, 2020), exploring further generalizations of the RAPM model (Grassetti et al., 2020 and Hvattum, 2019). Among the possible generalizations, the research will focus on studying different stochastic specifications of players' and lineups' effects (Kumbhakar et al., 2020) and evaluating another aggregation of the pbp data based on regular time spans (Ekstrøm and Jensen, 2023). The research activity in this framework should also involve collaborations with the local basketball teams (APU Udine and "Zio Pino" Baskin).
- Records prediction. The target is the application of extreme value theory and advanced calibration procedures to evaluate the probability of future records and assess the existence of ultimate records, which is of interest in individual sports like athletics and swimming, but also in research on the limits of the human body capability (Fonseca and Giummolè, 2019).
- Athletes and teams ranking. Starting from the existing works (Bozzo et al., 2020 and Franceschet et al., 2017), new ranking approaches for time-aware performance evaluation will be proposed, focusing on both the theoretical features of the procedures and the possibility of application to some sports, such as football or volleyball. These new rating and ranking procedures can be applied, using advanced statistical models, for predicting match results and forecasting the final outcome of a tournament.



References

- Albert, J., Glickman, M.E., Swartz, T.B. and Koning, R.H. eds., 2017. Handbook of statistical methods and analyses in sports. CRC Press.
- Baio, G. and Blangiardo, M., 2010. Bayesian hierarchical model for the prediction of football results. Journal of Applied Statistics, 37(2), pp.253-264.
- Bozzo, E., Vidoni, P. and Franceschet, M., 2020. A parametric family of Massey-type methods: inference, prediction, and sensitivity. Journal of Quantitative Analysis in Sports, 16(3), pp.255-269.
- Egidi, L. and Gabry, J., 2018. Bayesian hierarchical models for predicting individual performance in soccer. Journal of Quantitative Analysis in Sports, 14(3), pp.143-157.
- Ekstrøm, C.T. and Jensen, A.K., 2023. Having a ball: evaluating scoring streaks and game excitement using in-match trend estimation. AStA Advances in Statistical Analysis, 107(1-2), pp.295-311.
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- Franceschet, M., Bozzo, E. and Vidoni, P., 2017. The temporalized Massey's method. Journal of Quantitative Analysis in Sports, 13(2), pp.37-48.
- Grassetti, L., Bellio, R., Di Gaspero, L., Fonseca, G. and Vidoni, P., 2021. An extended regularized adjusted plus-minus analysis for lineup management in basketball using play-by-play data. IMA Journal of Management Mathematics, 32(4), pp.385-409.
- Hvattum, 2019. A comprehensive review of plus-minus ratings for evaluating individual players in team sports. International Journal of Computer Science in Sport, 18(1), 1-23.
- Kumbhakar, S.C., Parmeter, C.F. and Zelenyuk, V., 2020. Stochastic frontier analysis: Foundations and advances I. Handbook of production economics, pp.1-40.
- Sarlis, V. and Tjortjjs, C., 2020. Sports analytics—Evaluation of basketball players and team performance. Information Systems, 93, p.101562.

Struttura dell'Università di Udine presso la quale verrà sviluppata l'attività di ricerca / Department or other structure of the University of Udine where research activities will be carried out:

Dipartimento di Scienze Economiche e Statistiche (DIES) / Department of economics and statistics

Importo dell'assegno di ricerca (al lordo oneri carico assegnista) / Total grant gross for the research fellowship:

€ 19.456,30

Durata dell'assegno di ricerca / Duration of the research fellowship "assegno di ricerca":

12 mesi / months

Finanziamento / Financed by:

La copertura finanziaria graverà sul progetto PRIN 2022 – “Statistical Models and AlgoRiThms in sports (SMARTsports). Applications in professional and amateur contexts, with able-bodied and disabled athletes”; Prot. n. 2022R74PLE. Decreto di finanziamento n. 973 del 30/06/2023 - Settore PE1. Codice CUP G53D23001870006. Ministero dell'Università e della Ricerca (Finanziato dall'Unione Europea, NextGenerationEU).



Requisiti di ammissione / Minimum qualifications necessary:

- Possesso di un diploma di laurea vecchio ordinamento (ante decreto 3 novembre 1999 n. 509) o di laurea specialistica/magistrale (ex decreto 3 novembre 1999 n. 509 e decreto 22 ottobre 2004 n. 270) o titolo equivalente conseguito all'estero;
- possesso di un curriculum scientifico professionale idoneo allo svolgimento dell'attività di ricerca contemplata.
- University degree obtained before Decree n. 509 of 3 November 1999 or specialistic/Master's degree (post decree n. 509 of 3 November 1999 and decree n. 270 of 22 October 2004) or equivalent degree obtained abroad;
- professional scientific curriculum suitable for the research activity above mentioned.

Procedura selettiva / Competition procedure:

Valutazione per titoli e colloquio / Evaluation of titles and oral exam

I risultati della valutazione dei titoli saranno resi noti agli interessati nel corso del colloquio / The evaluation of the qualifications will be disclosed to candidates during the interview

Calendario del colloquio / Calendar of the oral exam	Modalità / Modality	Videoconferenza (piattaforma Microsoft Teams) / Videoconference (Microsoft Teams platform)
	Data / Date	10 novembre / November 2023
	Ora / Time	14:30 / 2:30 pm (Italian time)
	Luogo / Place	–

Per sostenere il colloquio i candidati devono esibire un valido documento di riconoscimento. / Candidates must come to the interview with a valid identity document.

Eventuali variazioni saranno rese note esclusivamente mediante pubblicazione all'albo ufficiale on line dell'Ateneo / Any change will be made public solely through publication on the University web site http://web.uniud.it/ateneo/normativa/albo_ufficiale

Nota / Note: Le indicazioni sulle modalità di svolgimento della prova in modalità telematica saranno inviate ai candidati con successiva email da parte del Presidente della Commissione. Ai fini dell'identificazione e a pena di esclusione dalla procedura selettiva, ciascun candidato è tenuto ad identificarsi prima che il colloquio abbia inizio, esibendo il medesimo documento di identità allegato alla domanda di ammissione al concorso. Il candidato deve risultare reperibile nella giornata e all'orario indicato sul bando. Il mancato collegamento, l'irreperibilità del candidato nel giorno o nell'orario stabilito o la mancata esibizione del documento identificativo, sono motivo di esclusione dalla procedura selettiva. La registrazione delle prove orali è vietata. L'Ateneo adotterà pertanto tutti i provvedimenti in suo potere per tutelare i soggetti coinvolti qualora venissero diffuse tramite internet – o altri mezzi di diffusione pubblica – video, audio o immagini della procedura selettiva. / Instructions on how the video interviewing will be conducted will be provided to candidates by the Chairman of the Examining Board via email. For identification purposes, each candidate is required to identify him/herself before the interview by exhibiting the same identification document attached to the application. Candidates must be available on the day and time established by the call for applications. Failure of the candidate to establish a video connection, the unavailability of the candidate on the day and/or time established or failure of the candidate to provide the required identification document are all grounds for exclusion from the selection procedure. Recording of the video interviews is prohibited.



The University will adopt all the measures within its power to protect all personnel involved as a result of dissemination via the internet or via other forms of public dissemination, of videos, audios or other pictures of the selection procedures.

Commissione giudicatrice / Examining Board:

Nome e Cognome	Qualifica	SSD	Università
Membri Effettivi / Permanent members			
Valentina Mameli	PA	SECS-S/01	Università degli Studi di Udine
Giovanni Fonseca	PA	SECS-S/01	Università degli Studi di Udine
Luca Grassetti	PA	SECS-S/03	Università degli Studi di Udine
Membri Supplenti / Temporary members			
Ruggero Bellio	PO	SECS-S/01	Università degli Studi di Udine
Paolo Vidoni	PO	SECS-S/01	Università degli Studi di Udine