

Xornada de presentación de software con licenza libre para uso científico Software matemático e estatístico

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DEPARTAMENTO DE ESTATÍSTICA,
ANÁLISE MATEMÁTICA E OPTIMIZACIÓN



Esquema da presentación

Software

- Software Matemático

- Software Estatístico e de Investigación Operativa

- Boas prácticas

- Edición e entornos de traballo

Presentación de resultados

Publicación de resultados

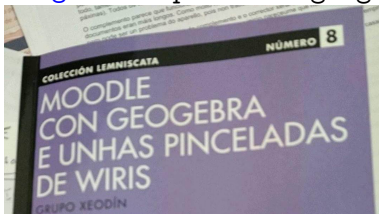
Preguntas

Álgebra

- ▶ **Axiom** <http://www.axiom-developer.org/>
- ▶ **Cadabra** <https://cadabra.science/>
- ▶ **CAS** <https://education.ti.com/es/products/computer-software/ti-nspire-cas-student-sw>
- ▶ **CoCoA** <http://cocoa.dima.unige.it/>
- ▶ **Derive** <http://www.derive.uptodown.com/>
- ▶ **GAP** <https://www.gap-system.org/>
- ▶ **Macsyma** \Leftrightarrow **Maxima** <http://maxima.sourceforge.net/>
- ▶ **Maple** <https://www.maplesoft.com/products/Maple/>
- ▶ **MuPAD** \in **Matlab** <https://es.mathworks.com/products/matlab.html>
- ▶ **MathCAD** <https://www.ptc.com/en/products/mathcad>
- ▶ **PARI/GP** <https://pari.math.u-bordeaux.fr/>
- ▶ **SciLab** <https://www.scilab.org/>
- ▶ **Xcas** <https://www-fourier.ujf-grenoble.fr/~parisse/giac.html>

Xeometría

- **Geogebra** <https://www.geogebra.org/?lang=es>



- **Mathematica** <https://www.wolfram.com/mathematica/>

Ecuacións diferenciais

- **Dynamic Solver** <http://tp.lc.ehu.es/jma/ds/ds.html>

Matemática Aplicada, Análise Numérica e Simulación

- ▶ **AMoreAccurateFourierTransform** <https://sourceforge.net/projects/amoreaccuratefouriertransform/>
- ▶ **Fluent** <https://www.ansys.com/products/fluids/ansys-fluent>
- ▶ **FreeMat** <http://freemat.sourceforge.net/>
- ▶ **Gnuplot** <https://sourceforge.net/projects/gnuplot/>
- ▶ **Graph** <https://www.padowan.dk/>
- ▶ **MapleSim** <https://www.maplesoft.com/products/maplesim/>
- ▶ **Matlab** <https://es.mathworks.com/products/matlab.html>
- ▶ **Modelica** <https://openmodelica.org/>
- ▶ **Octave** <https://www.gnu.org/software/octave/>
- ▶ **Scilab** <https://www.scilab.org/>
- ▶ **SciPy** <https://www.scipy.org/>
- ▶ **ZeGrapher** <https://www.zegrapher.com/>

Software e linguaxes de programación

- ▶ **Ampl** <https://ampl.com/>
- ▶ **Epidat**
<https://www.sergas.es/Saude-publica/EPIDAT?idioma=es>
- ▶ **JASP** <https://jasp-stats.org/>
- ▶ **Lindo** <https://www.lindo.com/>
- ▶ **Lingo** ∈ **Lindo**
- ▶ **Maple** <https://www.maplesoft.com/products/Maple/>
- ▶ **Maxima** <http://maxima.sourceforge.net/es/index.html>
- ▶ **Microsoft Excel** <https://products.office.com/es-es/home>
- ▶ **OpenOffice Calc**
<https://www.openoffice.org/es/producto/calc.html>
- ▶ **PSPP** <https://www.gnu.org/software/pspp/>
- ▶ **Python** <https://www.python.org/> – Linguaxe

Software e linguaxes de programación

- ▶ **R** <https://www.r-project.org/> – Linguaxe + Software
- ▶ **Rcmdr** ∈ R
- ▶ **Microsoft R Application Network**
<https://mran.microsoft.com/open>
- ▶ **S-PLUS** <http://www.solutionmetrics.com.au/products/splus/default.html>
- ▶ **SAS** https://www.sas.com/en_us/software/stat.html
- ▶ **SPSS**
<https://www.ibm.com/analytics/es/es/technology/spss/>
- ▶ **Stata** <https://www.stata.com/>
- ▶ Software e solvers de programación lineares e mixtas:
 - ▶ **Gurobi** <http://www.gurobi.com/>
 - ▶ **CPLEX** <https://www.ibm.com/analytics/data-science/prescriptive-analytics/cplex-optimizer>
 - ▶ **Lindo** <https://www.lindo.com/>

Economía / Econometría e Estatística en xeral

- ▶ **Demetra+** <https://ec.europa.eu/>
- ▶ **EViews** <http://www.eviews.com/>
- ▶ **Gretl** <http://gretl.sourceforge.net/>
- ▶ **Minitab** <http://www.minitab.com/>
- ▶ **OxMetrics** <http://www.timberlake.co.uk/software/oxmetrics.html#products>
- ▶ **TSW - TRAMO and SEATS** <https://www.bde.es/>
- ▶ ...
- ▶ e moitos máis!!!!

Xornada de Usuarios de R en Galicia

- ▶ **IV Xornada de Usuarios de R en Galicia** - Santiago de Compostela, 19.10.2017
- ▶ <https://www.r-users.gal/>
- ▶ **V Xornada de Usuarios de R en Galicia** - Santiago de Compostela, DD.MM.2018



R-LADIES GLOBAL

- ▶ <https://rladies.org/>
- ▶ <https://rladies.org/spain-rladies/>



Jornadas de Usuarios de R - R-Hispano

- ▶ **IX Jornadas de Usuarios de R** - R-Hispano - Granada, 16-17.11.2017
- ▶ <http://r-es.org/9jornadasR/>
- ▶ **X Jornadas de Usuarios de R** - R-Hispano - Murcia, 22-23.11.2018
- ▶ <http://r-es.org/>



Software matemático multiuso / multiplataforma

- ▶ **DataMelt** → entorno de computación científica, análise de datos e visualización de datos.
- ▶ **Epilinux** → orientado á utilización de ferramentas de análise epidemiolóxica e bioestadístico.
- ▶ **MathBuntu** → recompilación de programas e documentos para traballar coas matemáticas (LaTeX (LyX, TeXworks, Texmaker), Sage, Maxima, GeoGebra, Octave...).
- ▶ **Power Bi** → permite crear unha colección de consultas, conexións de datos, informes, modelado de datos e visualizacións que se poden compartir facilmente con outros usuarios. Funciona en liña.
- ▶ **SageMath** → un sistema alxebraico computacional. Está construído sobre paquetes matemáticos xa como NumPy, Sympy, PARI/ GP ou Maxima e por acceder á potencia conxunta dos mesmos a través de **Python**.

Sistema de información xeográfica (GIS)

- ▶ **ArcGIS** <https://www.arcgis.com/>
- ▶ **gvSIG** <http://www.gvsig.com/es>
- ▶ **MapInfo** <https://www.pitneybowes.com/us/location-intelligence/geographic-information-systems/mapinfo-pro.html>
- ▶ **QGIS** <https://www.qgis.org/es/site/>
- ▶ **SAGA GIS** <http://www.saga-gis.org/>
- ▶ ...
- ▶ Con **R** tamén se poden facer mapas e moitas máis cousas.

Control de versións e repositorios

- ▶ **GitHub** <https://github.com/>
- ▶ **Microsoft SourceSafe** [https://msdn.microsoft.com/es-es/library/3h0544kx\(v=vs.80\).aspx](https://msdn.microsoft.com/es-es/library/3h0544kx(v=vs.80).aspx)
- ▶ **Subversion** <http://subversion.apache.org/>
- ▶ ...

Consello gratuíto

- ▶ Comentar o código!!! e documentar!!!
- ▶ Comentar o código!!! non solo para ti, para TODOS e os que veñan!!!
- ▶ A **memoria é fráxil**

Editores

- ▶ **Eclipse** <https://www.eclipse.org/>
- ▶ **NotePad ++** <https://notepad-plus-plus.org/>
- ▶ **RStudio** <https://www.rstudio.com/>
- ▶ **Tinn-R** <https://sourceforge.net/projects/tinn-r/>
- ▶ **UltraEdit** <https://www.ultraedit.com/>
- ▶ ...

Temos que escribir e presentar os nosos resultados ...

- ▶ OpenOffice Writer
 - ▶ OpenOffice Impress
- ▶ Microsoft Word
 - ▶ Microsoft Power Point

Temos que escribir e presentar os nosos resultados Científicos

...

- ▶ LaTeX
 - ▶ Beamer
 - ▶ Shiny
- ▶ Conexión R e LaTeX, **R Markdown**, ...

Editores de LaTeX

- ▶ **TeXnicCenter** <http://www.texniccenter.org/>
- ▶ **TeXmaker** <http://www.xmlmath.net/texmaker/>
- ▶ **TeXstudio** <http://www.texstudio.org/>
- ▶ **TeXworks** <https://www.tug.org/texworks/>
- ▶ **ShareLaTeX** ⇒ Online <https://es.sharelatex.com/>
- ▶ **Overleaf** ⇒ Online <https://www.overleaf.com/>
- ▶ **TeXlipse plugin para Eclipse**
<http://texlipse.sourceforge.net/>
- ▶ **WinEdt** <http://www.winedt.com/>
- ▶ ...

Revistas científicas

- ▶ **ArXiv** <https://arxiv.org/>
- ▶ <https://www.software.ac.uk/which-journals-should-i-publish-my-software>

Revistas científicas - Xerais

1. Computing in Science & Engineering
2. Concurrency and Computation: Practice and Experience
3. Journal of Open Research Software
4. The Journal of Open Source Software
5. Journal of Software: Practice and Experience
6. Nature Toolbox
7. Research Ideas and Outcomes (RIO)
8. SIAM Journal on Scientific Computing (SISC) Software section
9. SoftwareX

Revistas científicas - Enxeñería

- 10. Advances in Engineering Software
- 11. Coastal Engineering
- 12. Renewable Energy

Revistas científicas - Humanidades e Ciencias Sociais

- 13. Digital Humanities Quarterly
- 14. Journal of Artificial Societies and Social Simulation
- 15. Journal of Economic Dynamics and Control

Revistas científicas - Procesamento de imaxes

- 16. Image Processing On Line
- 17. Insight Journal

Revistas científicas - Informática, Matemáticas e Estatística

18. ACM Transactions on Mathematical Software
19. The Archive of Numerical Software
20. Future Generation Computer Systems
21. Journal of Machine Learning Research (Machine Learning Open Source Software track)
22. Journal of Multiscale Modelling and Simulation
23. Journal of Parallel and Distributed Computing
24. Journal of Software for Algebra and Geometry
25. **Journal of Statistical Software**
26. Knowledge-Based Systems
27. LMS Journal of Computation and Mathematics
28. The Mathematica Journal
29. Mathematical Programming Computation
30. Numerical Algorithms
31. PeerJ Computer Science
32. **The R Journal**
33. Science of Computer Programming
34. The Stata Journal

Revistas científicas - Ciencias da vida (I)

35. American Journal of Human Genetics
36. Artificial Intelligence in Medicine
37. Artificial Life
38. Behaviour Research Methods
39. Bioinformatics (Application Notes)
40. Bioinformatics and Biology Insights
41. Biophysical Journal
42. BMC Bioinformatics
43. BMC Neuroscience
44. BMC Systems Biology
45. BMC Source Code for Biology and Medicine
46. Bone
47. Computer Methods and Programs in Biomedicine
48. Current Protocols in Bioinformatics
49. Database: The Journal of Biological Databases and Curation
50. Ecography (Software Notes)
51. eLife (Tools and Resources)

Revistas científicas - Ciencias da vida (II)

- 52. **Epidemiology**
- 53. Evolutionary Bioinformatics
- 54. F1000 Research
- 55. Frontiers in Neuroinformatics
- 56. Gigascience
- 57. Methods in Ecology and Evolution
- 58. Nature Methods
- 59. Neurocomputing
- 60. Neuroinformatics
- 61. Nucleic Acids Research (special issues)
- 62. PeerJ
- 63. PLoS Computational Biology: Software collection
- 64. **PLoS ONE**
- 65. Trends in Parasitology

Revistas científicas - Ciencias físicas e xeociencias

66. AAS: The Astronomy Journal
67. AAS: The Astrophysical Journal
68. AAS: The Astrophysical Journal Supplement Series
69. Astronomy and Computing
70. Communications in Computational Physics
71. Computational Astrophysics and Cosmology
72. Computer Physics Communications
73. Computers and Geosciences
74. Computing and Software for Big Science
75. Geoscientific Model Development
76. International Journal of Quantum Chemistry
77. Journal of Chemical Theory and Computation
78. Journal of Chemical Information and Modelling
79. Journal of Cheminformatics
80. Journal of Computational Chemistry (special articles - software news and updates)
81. Molecular Simulation
82. Wiley Interdisciplinary Reviews: Computational Molecular Science (Software Focus)



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