

Arthur Charpentier

Born on December 5th, 1975, in France

French nationality, Canadian permanent residency,

Married, 3 children,

Assistant Professor , Université de Rennes 1 (Economics Department)

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Blog & Twitter : <http://freakonometrics.hypotheses.org/> and [@freakonometrics](https://twitter.com/freakonometrics)

Education

- 2016 Habilitation à Diriger des Recherches, Université Rennes 1
- 2006 **PhD in Applied Mathematics**, KU Leuven
- 1999 Fellow of the French Institute of Actuaries
- 1999 **MSc in Mathematics Applied to Economics**, Université Paris Dauphine
- 1999 **MSc in Statistics**, National School of Statistics and Economics, ENSAE, Paris

Academic Positions

- 2014- Associate Professor, **Université de Rennes 1**, Economics Department
- 2011-2016 Professor, **Université du Québec à Montréal**, Mathematics Department
- 2010-2011 Visiting Professor, **Université de Montréal**, Mathematics Department
- 2009-2010 Associate Professor, **École Polytechnique**, Economics Department
- 2007-2011 Lecturer and Assistant Professor, **Université de Rennes 1**, Economics Department
- 2006-2007 Assistant Professor, **National School of Statistics**, ENSAI, Rennes
- 2002-2006 Assistant Professor, **National School of Statistics**, ENSAE, Paris

Other Academic Activities, Grants and Awards

- 2016- ANR (Agence Nationale de la Recherche) Project *Ordinal and Multidimensional Inequalities*
- 2015- Chair Institut Louis Bachelier *Valorisation et nouveaux usages actuariels de l'information*
- 2012-2017 NSERC (Natural Sciences and Engineering Research Council of Canada) Grant
- 2010 Geneva Association for Risk and Insurance Grant
- 2009-2012 Prime d'Excellence Scientifique
- 2008-2012 ANR Project *Spatio-Temporal Dependence in Risk Models*
- 2006 PhD price, Scor-Tillinghast

Publications (International, Peer Reviewed)

- Local utility and multivariate risk aversion. *Mathematics of Operations Research*, with Galichon, A. & Henry, M. (2016).
- Macro vs. Micro Methods in Non-Life Claims Reserving (an Econometric Perspective) *Risks*, with Pigeon, M. (2016).
- Probit transformation for kernel density estimation of the copula density. *Bernoulli*, with Geens, G. & Paindaveine, D. (2015).
- Bring Tents and Tweets: The Interplay between Onsite and Offsite Protest Activity. *Journal of Communication*, with Toledo Bastos, M. & Mercea, D. (2015).
- Visualizing spatial processes using Ripley's correction. *Geoinformatica*, with Gallic, E. (2015).
- Modeling earthquake dynamics. *Journal of Seismology*, with Durand, M.-L. (2015).
- Log-transform kernel density estimation of income distribution. *Actualité Économique*, with Flachaire, E. (2015).
- The 'Mother of all puzzles' at thirty: A Meta-Analysis. *International Economics*, with Tavéra, C., Poutineau, J.-C., Pentecôte, J.-S., Cadoret, I., Gueguen, C., Huchet, M., Licheron, J., Loeillet, G., Payelle, N., Pommier, S. (2015).
- Insuring natural catastrophes: When should government intervene? *Journal of Public Economics*, with Le Maux, B. (2014).
- Multivariate Archimax copulas. *Journal of Multivariate Analysis*, with Fougères, A.-L., Genest, C. & Nešlehová, J.G. (2014).
- Income inequality games. *Journal of Economic Inequalities*, with Mussard, S. (2011).
- 2003'heatwave and its return period. *Climatic Change* (2011).
- Beta kernel estimation for value-at-risk of heavy-tailed loss distributions. *Statistics & Computing*, with Oulidi, A. (2010).
- Insurability of climate risks. *Geneva Papers of Risk and Insurance* (2009).
- Tails of Archimedean copulas. *Journal of Multivariate Analysis*, with Segers, J.
- Estimating allocations for value-at-risk portfolio optimization. *Mathematical Methods in Operations Research*, with Oulidi, A. (2009). (2009).
- Dynamic flood modelling: Combining Hurst and Gumbel's approach. *Environmetrics*, with Sibai, D. (2008)
- Dynamic dependence ordering for Archimedean and distorted copulas. *Kybernetika*, (2008)
- Convergence of Archimedean copulas. *Statistics & Probability Letters*, with Segers, J. (2008).
- Lower tail dependence for Archimedean copulas: Characterizations and pitfalls. *Insurance: Mathematics and Economics*, with Segers, J. (2007).
- Limiting dependence structures for tail events, with applications to credit derivatives. *Journal of Applied Probability*, with Juri, A. (2006).
- Wind in Ireland: Long memory or seasonal effect? *Stochastic Environmental Research and Risk Assessment*, with Bouëtte, J.-C., Chassagneux, J.-F., Sibai, D. & Terron., R. (2005)

Books & Chapters

Computational Actuarial Science, with R. Chapman & Hall, London (2014)

Mathématiques de l'assurance non-vie - Tarification et provisionnement (Tome 2). Economica, Paris [2nd ed. 2013] with Denuit, M. (2005).

Mathématiques de l'assurance non-vie - Principes fondamentaux de théorie du risque (Tome 1). Economica, Paris with Denuit, M. (2004).

The estimation of copulas: Theory and practice. In *Copula Methods in Derivatives and Risk Management: From Credit Risk to Market Risk* (J. Rank, Ed.). Risk Books, London. with Fermanian, J.-D. & Scaillet, O. (2006).

Publications (French, Peer Reviewed, since 2014)

Le principe de précaution et ses paradoxes *Risques*, (2016)

Données et santé : valeurs, acteurs et enjeux. *Risques*, with Suire, R. (2016)

Fibonacci, les lapins, le nombre d'or et les calculs actuariels. *Risques*, (2016)

La guerre des étoiles: la significativité statistique pour distinguer signal et bruit. *Risques*, (2016).

Changement Climatique et Assurance, *Variances*, with Eyraud-Loisel, A., Hannart, A. & Tomas, J. (2016)

“Mathiness” et assurance. *Risques*, with Cherrier, B. (2015)

Segmentation et Mutualisation. *Risques*, Denuit, M. & Élie, R. (2015)

Passer d'une analyse de corrélation à une interprétation causale. *Risques*, with Barry, A. (2015).

Interprétation, intuition et probabilités. *Risques*, (2014).

De la difficulté de faire des prévisions (quand on a peu de données) *Risques*, (2014)

La loi des petits nombres. *Risques*, (2014).

L'efficience des marchés: Hypothèse de modèle ou fait stylisé? *Risques*, (2014)

Un homme, deux voix: Le vote par procuration. *La vie des idées*, February 11 with Coulmont, B. & Gombin, J. (2014).

Work in Progress

Understanding the Choice Between Negotiated versus Court Settlements in Bodily Injury Claim Compensation. *submitted*, with Betz, E., Geoffard, P.Y. & Tomas, J. (2016).

Quantile and Expectile Regression for Random Effects Model. *submitted*, with Diogo Barry, A. & Oualkacha, K. (2016).

Optimal Claiming Strategies in Bonus Malus Systems and Implied Markov Chains. *submitted* [ssrn-2790583](https://ssrn.com/abstract=2790583), with David, A. & Élie, R. (2016).

Invited Speaker (Conferences, since 2008)

Paris I, Septembre 2016 — European Actuarial Journal Summer School, Lyon, Septembre 2016 — Bank of England, Londres, Mai 2016 — Breizh Camp, Rennes, Avril 2016 — AGERS (Gerentes de Riesgos), Barcelone, Avril 2016 — BreizhCamp, Rennes, Mars 2016 — Colloque Extremes, copulas, actuarial science, CIRM, Février 2016 — Colloque Actuariat & Data Science, Paris, Novembre 2015 — Colloque 100% Actuaires, Paris, Octobre 2015 — Climate & Big Data, Buenos Aires, Novembre 2015 — ACP Meetings, Katholieke Universiteit Leuven, Mai 2015 — Le Mans Insurance & Finance Risk Colloquium, Novembre 2014 — R in Insurance, London, U.K. Juillet 2014 — Canadian Statistical Society Annual Conference, Toronto, Mai 2014 — World Social Science Forum, Montréal, Octobre 2013 — R/Rmetrics Meielisalp Workshop & Summer School on Computational Finance and Financial Engineering, Meielisalp, Suisse, Juin 2012 — Workshop Risque et changement climatique, ISFA, Lyon, Novembre 2011 — Workshop on Insurance Mathematics, Montréal, Janvier 2011 — Risk Intelligence Symposium & Knowledge 2009 Session: Financial risks, credit risk, Long term risk, environment risk & insurance risk, Paris, Octobre 2009 — International workshop on dynamic and multivariate risk measures, Université Paris Dauphine, Octobre 2009 — Workshop Analyse spatio-temporelle des risques, Université de Grenoble, Août 2009 — Conférence Banque de France, Université de Rennes 1, Juin 2009 — Satellite Meetings, Rio de Janeiro, Avril 2009 — Fourth Brazilian Conference on Statistical Modelling in Insurance and Finance, Sao Paulo, Avril 2009 — Summer School of the Groupe consultatif actuariel européen: Enterprise Risk Management (ERM) and Solvency II, ISFA, Lyon, Juillet 2008 — International Workshop on Applied Probability, Université de Compiègne, Juillet 2008 — Grands risques et réassurance, Université Paris Dauphine, Juin 2008 — Journées de statistiques SSC-SFdS, Ottawa, Canada, Mai 2008 — Actuarial and Financial Mathematics Conference (interplay between Finance and Insurance), Bruxelles, Belgique, Février 2008 — Workshop: Insurance and Adaptation to Climate Change, École Polytechnique, Paris, Mars 2008

Supervision (Postdoc, PhD & Students with publications)

- 2017- E. Gallic. Prevention, Insurance & Data, post-doc (ex. Université de Rennes 1)
- 2016- A. Goussebaïle. Natural Catastrophes, post-doc (ex. École Polytechnique-Université de Saclay)
- 2016 E. Belz, Bodily Injury Claims, Université de Rennes 1, M1
- 2015- A. Ly. Datamining & Insurance, PhD, co-supervised with R. Élie (Univ. Paris Est)
- 2015 A. David, Markov Models and Hunger for Bonus, Université de Rennes 1, L3
- 2013- A. Barry, Causalité et économétrie: Application à la modélisation de l'obésité, UQAM, Doctorat [SSHRC grant]
- 2012 M. Durand, Dynamics of Earthquakes, UQAM, Bachelor Program
- 2011-2012 E. Gallic, Spatio-Temporal Econometrics, UQAM & Université de Rennes 1, Master Program
- 2003-2004 D. Sibai, Modélisation des inondations, ENSAE, Master 2, Master Program

Member of Examination Jury (PhD thesis)

- 2016 *Three empirical essays on moral hazard identification in insurance*, A. Godzinski, Paris School of Economics (Supervisor: P.Y. Geoffard), Rapporteur
- 2016 *Gini-PLS regression: an application on European agriculture incomes inequalities* F. Souissi, Université de Montpellier (Supervisor: S. Mussard), Rapporteur
- 2016 *Prevention and Insurance of Natural Catastrophes* A. Goussebaïle, Université Paris Saclay, École Polytechnique (Supervisor: J.M. Bourgeon), Rapporteur
- 2015 *Uplift Modeling* L. Guelman, Universitat de Barcelona (Supervisor: M. Guillen)
- 2014 *Contribution to the weak convergence of empirical copula processes & to the stochastic claims reserving in general insurance* P. Sloma, Université Paris VI Pierre & Marie Curie (Supervisor: P. Deheuvels), Rapporteur
- 2014 *Multivariate Skew Models with Applications in Loss Reserving and Reinsurance* M. Pigeon, Université de Louvain (Supervisor: M. Denuit)
- 2013 *Quantifying biometric life insurance risks with non-parametric smoothing methods* J. Tomas, Universiteit van Amsterdam (Supervisor: R. Kaas)
- 2011 *Outils théoriques et opérationnels adaptés au contexte de l'assurance vie en Afrique subsaharienne francophone: Analyse et mesure des risques liés à la mortalité*, A. Kamega, Université Lyon 1 (Supervisor: F. Planchet), Rapporteur
- 2011 *Vine copulas and conditional correlation in finance*, P.-A. Maugis, Université Paris I Sorbonne (Supervisor: D. Guégan), Rapporteur
- 2010 *Contribution à l'étude du processus empirique de copule*, T. Zari, Université Paris VI Pierre & Marie Curie (Supervisor: P. Deheuvels)
- 2010 *Effets des comportements risqués des conducteurs sur la sinistralité: Analyse empirique sur des données françaises*, M. Maatig, Université Paris II Assas (Supervisor: M. Grun-Rehomme), Rapporteur
- 2008 *Nouvelles approches de l'étude de la sinistralité en assurance automobile*, N. Benlagha, Université Paris II Assas (Supervisor: M. Grun-Rehomme), Rapporteur

Reviewing

Grants : Fonds de la Recherche Scientifique (FRNS, Belgium), National Security Agency (NSA, U.S.A.), Natural Sciences and Engineering Research Council (NSERC, Canada), Fonds de Recherche du Québec (FRQNT, Canada), Agence Nationale pour la Recherche (ANR, France), AXA Research Fund.

Associate Editor: *European Actuarial Journal*

Editor Reviews : for books *Springer-Verlag* — *M.I.T. Press*

Journal Reviews : *Stochastic Environmental Research and Risk Assessment* — *Theory and Decision* — *Insurance: Mathematics and Economics* — *Journal of Banking and Finance* — *The Canadian Journal of Statistics* — *Journal of Computational and Graphical Statistics* — *Journal of Multivariate Analysis* — *Communications in Statistics: Theory and Methods* — *Quantitative Finance* — *Journal of the American Statistical Association* — *TEST, Asia-Pacific Journal of Financial Studies* — *Statistics and Decision* — *Kybernetika* — *European Journal of Finance* — *Mathematics and Financial Economics* — *Statistica Sinica* — *Extremes* — *Physics and Chemistry of the Earth* — *Computational Statistics* — *Geneva Papers on Risk and Insurance* — *Bernoulli* — *Water Resources* — *Statistics & Probability Letters* — *Mathematical Finance* — *Journal of Risk* — *Journal of Hydrology* — *Scandinavian Actuarial Journal* — *Advances in Statistical Analysis* — *European Actuarial Journal* — *Metrika* — *Journal of Statistical Planning and Inference* — *Annals of Applied Statistics* — *Constructive Approximation* — *Econometric Reviews* — *Annals of Economics and Statistics* — *Annals of Actuarial Science* — *Journal of the Royal Statistical Society – Series B* — *Mathematics of Social Sciences* — *Economic Theory* — *ASTIN Bulletin* — *Journal of Statistical Software* — *Journal of Population Economics* — *Risks* — *Journal of Zhejiang University - Science A* — *European Journal of Operation Research* — *Econometrica*.

Teaching (selection, after 2010)

Econometrics of Insurance (ENSAE, 2015, 2016)

Copulas & Extreme Values (UQaM MAT8595, 2014)

Risk Measures (PhD course, Université de Louvain, 2014)

Non-Life Insurance Mathematics (Université de Montréal, STT6705, 2011)

Predictive Modeling (UQaM MAT6421, 2011, 2012, 2014)

Time Series (Master, Université de Rennes 1, 2015, 2016 & UQaM MAT8181, 2014)

Mathematical Statistics (Master, Université de Rennes 1 2014, 2015, 2016)

Miscellaneous

2010- Editor of the Twitter account [@freakonometrics](#) (~ 16K followers)

2010 Biennale d'Art Contemporain in Rennes, with J. Prévieux

2008- Editor of the blog <http://freakonometrics.hypotheses.org> (~ 2,000,000 visits per year)

2002 Member of the “Jury du Livre Inter” (contemporary literature) (Winner: Christian Gailly)