

**Université de Nantes**  
**UFR STAPS**

Année universitaire 2012/2013

1<sup>ère</sup> session, 2e semestre

Année d'études : *L2*

Enseignant responsable : *Sarah ROSENFELD*

Durée de l'épreuve : *1h00*

Documents autorisés : *aucun*

**UED T449: Outils et méthodes**  
**EC T4493: Anglais**

**Sujet: WRITE AN ESSAY ABOUT SPORTS IN FILM** (150-200 words)

**READ the 3 articles about the film "INVICTUS":**

- **Annexe 1:** *Wikipedia* article – Invictus (film)
- **Annexe 2:** *Blog.Moviefone.com* review – Invictus (Dec 11, 2009)
- **Annexe 3:** *The Guardian* film review – Invictus (Feb 7, 2010)
- 

**THEN WRITE A SHORT ESSAY ABOUT "INVICTUS":**

**DESCRIBE The film briefly (1 paragraph):**

- Name of film
- Director
- Year
- Actors / Actresses
- Country
- Link to sports
- Film genre

**DESCRIBE the plot/story very briefly (1 paragraph):**

- Fiction or non-fiction?
- Is it based on a true story?
- Very brief synopsis (the story in 2 sentences)
- Sports context?
- Cultural context?
- Historical context?

**ANALYZE the film's message, in particular about sports (1 paragraph):**

- What is the message of the film? What is the message about sports/athletes?
- What will people learn from this film?

**GIVE YOUR OPINION about the message (1 paragraph):**

- What is your conclusion?
- **WHAT DO YOU THINK** about this subject/message?

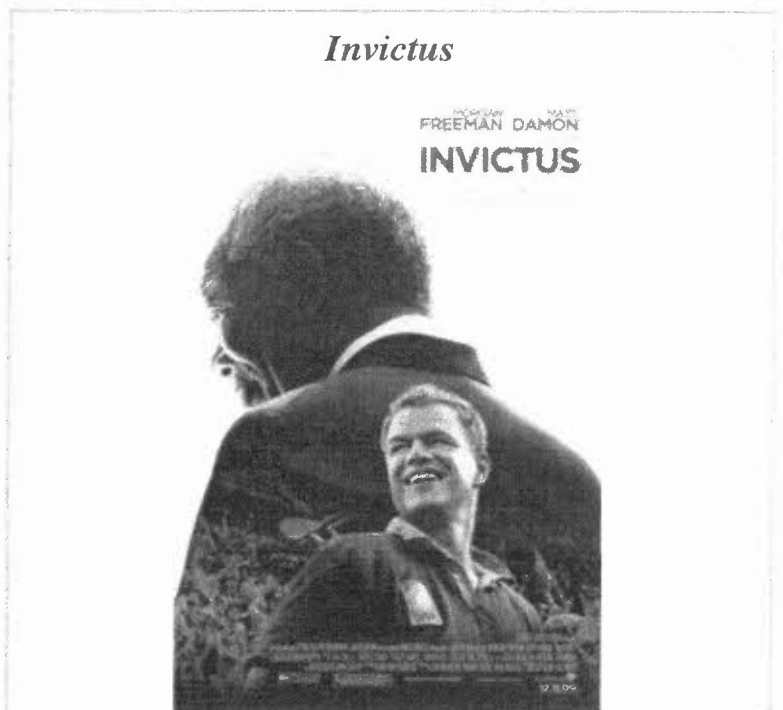
## *Invictus* (film)

From Wikipedia, the free encyclopedia

*Invictus* is a 2009 biographical sports drama film directed by Clint Eastwood starring Morgan Freeman and Matt Damon. The story is based on the John Carlin book *Playing the Enemy: Nelson Mandela and the Game That Made a Nation* about the events in South Africa before and during the 1995 Rugby World Cup, hosted in that country following the dismantling of apartheid. Freeman and Damon play, respectively, South African President Nelson Mandela and François Pienaar, the captain of the South African rugby union team the Springboks.<sup>[3]</sup>

*Invictus* was released in the United States on December 11, 2009. The title *Invictus* may be translated from the Latin as "undefeated" or "unconquered", and is the title of a poem by English poet William Ernest Henley (1849–1903).

The film was met with positive critical reviews and earned Academy Award nominations for Freeman (Best Actor) and Damon (Best Supporting Actor).



Theatrical release poster

<b>Directed by</b>	Clint Eastwood
<b>Produced by</b>	Clint Eastwood Lori McCreary Robert Lorenz Mace Neufeld
<b>Screenplay by</b>	Anthony Peckham
<b>Based on</b>	<i>Playing the Enemy: Nelson Mandela and the Game that Made a Nation</i> by John Carlin
<b>Starring</b>	Morgan Freeman Matt Damon
<b>Music by</b>	Kyle Eastwood Michael Stevens
<b>Cinematography</b>	Tom Stern
<b>Editing by</b>	Joel Cox Gary D. Roach

## Contents

- 1 Plot
- 2 Cast
- 3 Production
- 4 Reception
  - 4.1 Critical
  - 4.2 Box office
  - 4.3 People involved
- 5 Accolades
- 6 Soundtrack listing
- 7 Home media release
- 8 See also
- 9 References
- 10 External links

<b>Studio</b>	Revelations Entertainment Malpaso Productions Spyglass Entertainment
<b>Distributed by</b>	Warner Bros. Pictures
<b>Release date(s)</b>	December 11, 2009
<b>Running time</b>	135 minutes
<b>Country</b>	United States South Africa
<b>Language</b>	English Afrikaans Maori
<b>Budget</b>	\$50 million <sup>[1]</sup>
<b>Box office</b>	\$122,233,971 <sup>[2]</sup>

## Plot

On 11 February 1990, Nelson Mandela is released from Victor Verster Prison after 27 years spent in jail. Four years later, Mandela is elected the first black President of South Africa. His presidency faces enormous challenges in the post-Apartheid era, including rampant poverty and crime. Mandela is particularly concerned about racial divisions between black and white South Africans, which could lead to violence. The ill will which both groups hold towards each other is seen even in his own security detail where relations between the established white officers, who had guarded Mandela's predecessors, and the black ANC additions to the security detail, are frosty and marked by mutual distrust.

While attending a game of the Springboks, the country's rugby union team, Mandela recognizes that the blacks in the stadium cheer against their 'home' squad, as the mostly-white Springboks represent prejudice and apartheid in their minds. He remarks that he did the same while imprisoned on Robben Island. Knowing that South Africa is set to host the 1995 Rugby World Cup in one year's time, Mandela convinces a meeting of the newly black-dominated South African Sports Committee to support the Springboks. He then meets with the captain of the Springboks rugby team, François Pienaar (Matt Damon), and implies that a Springboks victory in the World Cup will unite and inspire the nation. Mandela also shares with François a British poem, "Invictus", that had inspired him during his

time in prison.

François and his teammates train. Many South Africans, both black and white, doubt that rugby will unite a nation torn apart by some 50 years of racial tensions. For many blacks, especially the radicals, the Springboks symbolise white supremacy. Both Mandela and Pienaar, however, stand firmly behind their theory that the game can successfully unite the South African country.

Things begin to change as the players interact with the fans and begin a friendship with them. During the opening games, support for the Springboks begins to grow among the black population. By the second game, the whole country comes together to support the Springboks and Mandela's efforts. Mandela's security team also grows closer as the various officers come to respect their comrade's professionalism and dedication.

The Springboks surpass all expectations and qualify for the final against New Zealand All Blacks—the most successful rugby team in the world both then and now. Before the game, the Springbok team visits Robben Island, where Mandela spent 27 years in jail. There Pienaar is inspired by Mandela's will and his idea of self-mastery in the poem *Invictus*. François mentions his amazement that Mandela "could spend thirty years in a tiny cell, and come out ready to forgive the people who put [him] there".

Supported by a large home crowd of both races, Pienaar motivates his team. Mandela's security detail receives a scare when, just before the match, a jumbo jet buzzes the stadium. It is not an assassination attempt though, but a demonstration of patriotism. The Springboks win the match on an added time long drop-kick from fly-half Joel Stransky, with a score of 15–12. Mandela and Pienaar meet on the field together to celebrate the improbable and unexpected victory. Mandela's car then drives away in the traffic-jammed streets leaving the stadium. As Mandela watches the South Africans celebrating together in the car, his voice is heard reciting the poem "Invictus".

## Cast

- Morgan Freeman as Nelson Mandela
- Matt Damon as François Pienaar
- Julian Lewis Jones as Etienne Feyder<sup>[4]</sup>
- Adjoa Andoh as Brenda Mazibuko
- Patrick Mofokeng as Linga Moonsamy
- Matt Stern as Hendrick Booyens
- Marguerite Wheatley as Nerine Winter (...)

Source : [http://blog.moviefone.com/2009/12/11/invictus-review/?a\\_dgi=aolshare\\_email](http://blog.moviefone.com/2009/12/11/invictus-review/?a_dgi=aolshare_email)

## MOVIE REVIEW – INVICTUS



The indefatigable Clint Eastwood has made the best movie of the year ... the best movie, that is, about rugby. *Invictus* is very solid, very earnest, and very, very earthbound, falling short of the emotional heights to which it aspires.

Undoubtedly, the true story of Nelson Mandela is inspiring. His desire to showcase the sport of rugby as a means to help unite 40 million South Africans, or at least to contribute to the healing process after decades of division based on racial and cultural lines, is admirable and heartwarming. It demonstrates his deep understanding of the human condition and his recognition of the importance of team sports in the lives of ordinary people.

Morgan Freeman is splendid as Mandela, embodying the undying fire and humble demeanor of a man who lost more than a quarter century of his life to unjust imprisonment. Matt Damon is effective as Francois Pienaar, a man who prefers to lead the Springboks, the all-white (save one) South African national rugby team, by his example rather than his words. And Clint Eastwood directs with his usual restrained precision, which is the film's greatest strength and its most glaring weakness.

Over his long career as a director, Eastwood has developed an outwardly informal style of filmmaking. The settings and backgrounds are sharply defined; actors, both in lead and supporting roles, are given room to define their characters; the pace is languid and measured, never in much of a hurry to get to the end.

Within that established framework, he relies upon the script to tell the story and the performers to make it convincing. His films don't dazzle with visual fireworks or elicit emotions through powerful musical scores or excite with expressive editing. He's not adverse to salting his pictures with tiny moments of unexpected humor or poignancy, but those are grace notes. He's sufficiently confident to say, in effect: 'Here is the movie, take it or leave it on its own merits, I don't want to influence you one way or the other.'

And when all the elements come together, as with *Unforgiven* or *The Outlaw Josey Wales*, or when most of the elements come together, as with *Million Dollar Baby* or *Pale Rider*, or when one great performance enlivens an otherwise routine story, as with *Gran Torino* or *The Gauntlet* or *Breezy*, the results can be spellbinding. (That's a great body of work right there.) When the picture is intended as lighter entertainment, as with *Space Cowboys* or *The Rookie* or *Bronco Billy* or *The Eiger Sanction*, the results are usually better than expected. When the script isn't quite up to snuff, as with *Blood Work*, *True Crime*, or *Absolute Power*, there are still some rewarding moments to be found. When hysterical over-acting undercuts the proceedings, as with *Changeling* or *Mystic River*,

the ambition can still be admired.

*Invictus* has some elements that work very well: the aforementioned performance by Freeman being a major asset, along with an apparently expert recreation of South Africa in 1995 during the period immediately after Mandela was elected President. Even Freeman's sincere performance, however, runs into a major roadblock that the script is not able to overcome, namely: How do you fairly portray President Mandela as anything less than a saint who gave hope to millions of people?

Everything that Mandela says in the movie sounds too carefully scripted, as though each and every word is invested with deep meaning. Even his small talk is viewed as inspirational; after a brief chat over tea, for example, Pienaar (Damon) deduces with surprising hindsight that Mandela wants his team to win the world cup, even though he never mentioned such a thing!

Perhaps this is truly how Mandela spoke and conducted himself while in office, unwavering in his positive spirit whether in public or private. As the main character in *Invictus*, however, he comes across as an icon rather than an individual. It makes the movie feel like a stiff-legged living monument, a breathing history lesson as opposed to a vibrant restaging of dramatic events.

Damon, too, may well reflect the real-life Pienaar, in his soft-spoken determination to improve himself and to spark his teammates to victory. With his well-developed barrel chest and deliberate gestures, Damon looks and moves differently than the action heroes and smooth operators he's played in the past (and notably different than the would-be spy he essayed in *The Informant!*); his character is defined almost entirely by his restraint, which makes his occasional outward displays of emotion all the more revealing.

Restraint is practically the rallying cry for the movie as a whole. While restraint and self-control may be admirable personal qualities, though, they make for dispassionate bedfellows in a moving picture.

It doesn't help that the rules of the sport of rugby are not commonly known; they are not explained in the film, so the viewer is left to puzzle over the spectacle of a group of grimacing opposing players locked at the head and shoulders, shoving one way and another, while the ball innocently rolls free on the ground, evidently waiting for a sharp-eyed player to pick it up and kick it through the goal posts to score points. Despite all the shots of flag waving, cheering fans, the extended game footage drags down the film's momentum at a time when it needs to intensify, or even, dare I say, pick up the pace.

Even with all these caveats, there is much that is worthwhile about *Invictus*. The most indelible moments happen off the field and away from the speechifying and, mostly, without words. Among them: a white woman's surprise that a free sports jersey would be turned down; an angry, raucous meeting of the National Sports Council; Francois Pienaar seeing Mandela's prison cell for himself; the look on a housekeeper's face when she gets a ticket to a big game; a young black boy hanging around two scowling white cops so he can listen to a radio broadcast.

Those small moments (and others) illuminate the devastation wrought by institutional racism, and the huge challenge in repairing the damage that was caused, far more than words can say. *Invictus* may not live up to the (perhaps unfairly high) expectations raised by the talent involved, yet it still delivers a potent, sadly relevant message ... 14 long years after the event depicted took place.



ANNEXE 3 (3 PAGES)

the guardian The Observer

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# Invictus

Clint Eastwood scores yet again with a rousing tale of the moment when Nelson Mandela harnessed the power of rugby to unite South Africa



Philip French  
The Observer, Sunday 7 February 2010



Morgan Freeman as Nelson Mandela in Clint Eastwood's *Invictus*. Photograph: Keith Bernstein

Clint Eastwood has been acting in movies for 55 years and directing them for 40. Astonishingly, in an industry that favours youth and discourages originality, he's been doing his best and boldest work in his eighth decade. It seemed he'd reached a creative zenith when he returned to his roots with the classic western *Unforgiven* in 1992. But since the turn of the century, he's made 10 immensely varied films, including a remarkable defence of euthanasia, *Million Dollar Baby*, the superb diptych of Second World War films, *Flags of Our Fathers* and *Letters From Iwo Jima*, a documentary on piano blues and a deeply felt story of a man rethinking his values in late middle age, *Gran Torino*.

**Invictus**  
.....  
**Production year:**  
2009  
**Country:** USA  
**Cert (UK):** 12A  
**Runtime:** 133 mins  
**Directors:** Clint Eastwood  
**Cast:** Julian Lewis Jones, Matt Damon, Matt Stern, Morgan Freeman, Patrick Mofokeng, Tony Kgoroge  
[More on this film](#)

Not all of these films have been particularly subtle, but each has been a fine piece of storytelling, and they've embraced in a generous, unsanctimonious manner a rare range of human sympathies and of characters, extending from an aristocratic Japanese general to blue-collar, Irish-American Bostonians.

The majestic *Invictus*, the most rousing movie about sport since *Chariots of Fire*, fits very much into this pattern. It's an account of the relationship between President Nelson Mandela and Francois Pienaar, captain of the South Africa team in the 1995 Rugby World Cup tournament. A

manipulative, deeply emotional film, it's openly committed to a belief in the basic decency of mankind, unafraid of an accusation of sentimentality and unabashed in its inspirational aim of drawing people together in a form of communion.

The movie begins with a forthright image of a divided society in 1990. Just released from 27 years of incarceration, Mandela drives along a road that runs between two playing fields. On one side, ragged black kids play football on a dirt pitch between rusty goalposts; on the other, immaculately kitted-out white boys play rugby on a neatly tended grass pitch. The black kids shout excitedly as Mandela passes, the white lads' coach says: "This is the day our country went to the dogs."

The movie then leaps forward to Mandela's election as president in 1994. Settling into a terrifying task in which he seeks forgiveness and reconciliation, he first surprises his inherited staff by offering to keep them on. He then brings in hardline Afrikaners to join his black bodyguards. These scenes are beautifully handled, and although Morgan Freeman is no Mandela lookalike, he gets just right that slight stoop, the rolling gait and the slow, decisive speech, and is soon in authoritative command of the movie.

Crucial is the controversial decision to risk alienating his black followers by preventing the new sports council from abolishing the Springboks rugby team and its green-and-gold uniform. This leads to the positive move to bring the nation together in support of the team at the 1995 World Cup.

At two key moments, the movie has a forceful topicality. Before dawn on his first day in office, Mandela and his bodyguards make their way to the parliament in Pretoria and a van driver drops a pile of Afrikaans newspapers on the pavement in front of them. Mandela translates the headline: "He can win an election but can he rule the country?" The bodyguards bridle at the insult but Mandela remarks: "It's a legitimate question." This is the significant Barack Obama moment.

Later, when he decides to use the rugby championship for both moral and political purposes, he invites Francois Pienaar (an able and convincing performance by Matt Damon) to have tea with him. Pienaar, a middle-class man of conventional views, is the captain of a badly failing team, then in the process of returning to international rugby after years of exclusion during apartheid. To test whether he is the man for the great task he has in mind, Mandela asks him about his philosophy of leadership. To lead by example is his reply and we know, through the honest directness Damon embodies, that he is a man capable of moral growth.

At this point, we inevitably think of the current controversy over the status of John Terry's England football captaincy and are aware of what has been happening to professional sport and its practitioners. Interestingly, in the early days of apartheid, Alan Paton followed up



*Cry the Beloved Country* with *Too Late the Phalarope*, the tragic hero of which is an Afrikaner rugby star whose life is transformed through an illegal affair with a black girl.

There are wonderful sequences in this film. Blunt but unforgettable is the visit Pienaar and his team make to Robben Island where Mandela was jailed for 18 years in appalling conditions. Pienaar tries to imagine what life was like there, and on the soundtrack Mandela reads "Invictus", the short Victorian poem by WE Henley that ends with the couplet "I am the master of my fate/ I am the captain of my soul" that had sustained him in prison.

The final 45 minutes are dominated by a series of rugby games and it's splendid at last to have a change from American football. Offhand, I can only think of a small handful of rugby pictures: Lindsay Anderson's near-great *This Sporting Life*, which presents the game in an dispiriting light; *Alive*, where Uruguayan rugby players eat their dead team mates when stranded in the Andes; and Roger Vadim's *La curée* (aka *The Game Is Over*) in which Jane Fonda seduces Peter McEnery, her rugby playing stepson. We have Eastwood to thank for making the match sequences lucid, lively, convincing and uplifting. Eastwood has also worked with his musician son Kyle to produce a remarkable soundtrack drawing on a wide variety of South African music.

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**UFR STAPS**

Année universitaire 2012/2013

1<sup>ère</sup> session, 2<sup>nd</sup> semestre

Année d'études : **Licence 2<sup>ème</sup> année - DA**  
Enseignant responsable : **Thibault DESCHAMPS**

Durée de l'épreuve : **1h00**  
Documents autorisés : **calculatrice**

***UED T449--- : Outils et méthodes***

***EC T4492-- : Statistiques***

*Tables statistiques p. 4-5*

**Exercice 1** (5 points)

Dans une grande entreprise, le salaire moyen des hommes possédant entre 3 et 5 ans d'expérience est de 28 000€. Les salaires (en milliers d'euros) d'un échantillon aléatoire composé de 10 femmes possédant entre 3 et 5 ans d'expérience sont les suivants (variance de cet échantillon :  $v = 38,76$ ) :

24   27   31   21   19   26   30   22   15   36

Y a-t-il des preuves attestant de niveaux de salaire différents pour les hommes et les femmes ?

**Exercice 2** (5 points)

Un professeur d'EPS prépare ses élèves de 6<sup>ème</sup> à une compétition inter-académique. Parmi les épreuves au programme de cette compétition, les élèves doivent réaliser une course de cross-country de 3,5 kilomètres. Aussi le professeur espère de ses élèves qu'ils réalisent une performance moyenne de 15 minutes. Finalement, lors de la compétition, seuls 9 élèves ont terminé la course, avec les performances suivantes (exprimées en secondes) :

953   1002   865   945   946   987   988   1123   956

En supposant la normalité des performances, que peut-il conclure au risque 5% ?

(La variance de cet échantillon est égale à 4702,61)

**Exercice 3** (6 points)

On mesure des temps de réaction de choix à 2 éventualités ( $TRC_2$ ) et à 4 éventualités ( $TRC_4$ ) (exprimés en *ms*) (Les distributions des données sont supposées normales).

	$TRC_2$	$TRC_4$	$d$
Spécialistes des activités sportives duelles et collectives (sports de raquette, sports collectifs, etc.)	330,59	399,51	68,92
	280,97	334,6	53,63
	306,97	353,08	46,11
	329,36	359,66	30,3
	308,24	313,83	5,59
	321,21	334,01	12,8
	332,77	393,78	61,01
	321,5	375,59	54,09
	302,72	376,35	73,63
	340,73	479,2	138,47
<b>Moyenne</b>	<b>317,5</b>	<b>371,96</b>	
<b>Variance</b>	<b>318,23</b>	<b>2165,64</b>	<b>1383,91</b>

Spécialistes des activités sportives individuelles et fermées (activités gymniques, aviron, athlétisme, etc.)	322,71	390,72	68,01
	344,32	311,11	-33,21
	373,67	395,9	22,23
	392,84	433,21	40,37
	321,67	376,56	54,89
	372,09	424,53	52,44
	306,39	369,05	62,66
	352,52	393,08	40,56
	373,81	394,74	20,93
	346	417,19	71,19
	358,28	375,31	17,03
	362,24	418,5	56,26
<b>Moyenne</b>	<b>352,21</b>	<b>391,65</b>	<b>39,44</b>
<b>Ecart-type</b>	<b>25,43</b>	<b>32,61</b>	<b>29,34</b>

1. Dans le groupe « *Spécialistes des activités sportives duelles et collectives* », pouvez-vous affirmer que le troisième de la liste est meilleur au test de  $TRC_2$  qu'au test de  $TRC_4$  ?

2. Les *spécialistes des activités sportives duelles et collectives* présentent-ils des résultats statistiquement plus élevés au test de  $TRC_2$  qu'au test de  $TRC_4$  ?

3.1 Pour un risque d'erreur de 1%, pouvez-vous affirmer que les *spécialistes des activités sportives duelles et collectives* sont moins bons sur le test de  $TRC_2$  que les *spécialistes des activités sportives individuelles et fermées* ?

3.2 Pour un seuil de significativité de  $p = 0.05$ , changeriez-vous de conclusions ?

**Exercice 4** (4 points)

Lors d'une évaluation d'activités circassiennes, un professeur d'EPS obtient sur sa classe de 3<sup>ème</sup> ( $n = 25$ ) une moyenne de 11,54 ( $\pm 3,2$ ).

12	13	11	10	5	17	14	9	10	12	13	15	6	8
		16	12	13	17	8	10	12	13	14	7	11	

1. En considérant les notes normalement distribuées, pouvez-vous dire au seuil .05, quelles sont les limites de confiance de la moyenne obtenue?

2. Que pouvez affirmer en ayant 99% de chances de ne pas vous tromper ?

### Loi normale réduite (Probabilités bilatérales)

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	1.00000	0.99202	0.98404	0.97607	0.96809	0.96012	0.95216	0.94419	0.93624	0.92829
0.1	0.92034	0.91241	0.90448	0.89657	0.88866	0.88076	0.87288	0.86501	0.85715	0.84931
0.2	0.84148	0.83367	0.82587	0.81809	0.81033	0.80259	0.79486	0.78716	0.77948	0.77182
0.3	0.76418	0.75656	0.74897	0.74140	0.73386	0.72634	0.71885	0.71138	0.70395	0.69654
0.4	0.68916	0.68181	0.67449	0.66720	0.65994	0.65271	0.64552	0.63836	0.63123	0.62413
0.5	0.61708	0.61005	0.60306	0.59611	0.58920	0.58232	0.57548	0.56868	0.56191	0.55519
0.6	0.54851	0.54186	0.53526	0.52869	0.52217	0.51569	0.50925	0.50286	0.49650	0.49019
0.7	0.48393	0.47770	0.47152	0.46539	0.45930	0.45325	0.44725	0.44130	0.43539	0.42953
0.8	0.42371	0.41794	0.41222	0.40654	0.40091	0.39532	0.38979	0.38430	0.37886	0.37347
0.9	0.36812	0.36282	0.35757	0.35237	0.34722	0.34211	0.33706	0.33205	0.32709	0.32217
1.0	0.31731	0.31250	0.30773	0.30301	0.29834	0.29372	0.28914	0.28462	0.28014	0.27571
1.1	0.27133	0.26700	0.26271	0.25848	0.25429	0.25014	0.24605	0.24200	0.23800	0.23405
1.2	0.23014	0.22628	0.22247	0.21870	0.21498	0.21130	0.20767	0.20408	0.20055	0.19705
1.3	0.19360	0.19020	0.18684	0.18352	0.18025	0.17702	0.17383	0.17069	0.16759	0.16453
1.4	0.16151	0.15854	0.15561	0.15272	0.14987	0.14706	0.14429	0.14156	0.13887	0.13622
1.5	0.13361	0.13104	0.12851	0.12602	0.12356	0.12114	0.11876	0.11642	0.11411	0.11183
1.6	0.10960	0.10740	0.10523	0.10310	0.10101	0.09894	0.09691	0.09492	0.09296	0.09103
1.7	0.08913	0.08727	0.08543	0.08363	0.08186	0.08012	0.07841	0.07673	0.07508	0.07345
1.8	0.07186	0.07030	0.06876	0.06725	0.06577	0.06431	0.06289	0.06148	0.06011	0.05876
1.9	0.05743	0.05613	0.05486	0.05361	0.05238	0.05118	0.05000	0.04884	0.04770	0.04659
2.0	0.04550	0.04443	0.04338	0.04236	0.04135	0.04036	0.03940	0.03845	0.03753	0.03662
2.1	0.03573	0.03486	0.03401	0.03317	0.03235	0.03156	0.03077	0.03001	0.02926	0.02852
2.2	0.02781	0.02711	0.02642	0.02575	0.02509	0.02445	0.02382	0.02321	0.02261	0.02202
2.3	0.02145	0.02089	0.02034	0.01981	0.01928	0.01877	0.01827	0.01779	0.01731	0.01685
2.4	0.01640	0.01595	0.01552	0.01510	0.01469	0.01429	0.01389	0.01351	0.01314	0.01277
2.5	0.01242	0.01207	0.01174	0.01141	0.01109	0.01077	0.01047	0.01017	0.00988	0.00960
2.6	0.00932	0.00905	0.00879	0.00854	0.00829	0.00805	0.00781	0.00759	0.00736	0.00715
2.7	0.00693	0.00673	0.00653	0.00633	0.00614	0.00596	0.00578	0.00561	0.00544	0.00527
2.8	0.00511	0.00495	0.00480	0.00465	0.00451	0.00437	0.00424	0.00410	0.00398	0.00385
2.9	0.00373	0.00361	0.00350	0.00339	0.00328	0.00318	0.00308	0.00298	0.00288	0.00279
3.0	0.00270	0.00261	0.00253	0.00245	0.00237	0.00229	0.00221	0.00214	0.00207	0.00200
3.1	0.00194	0.00187	0.00181	0.00175	0.00169	0.00163	0.00158	0.00152	0.00147	0.00142
3.2	0.00137	0.00133	0.00128	0.00124	0.00120	0.00115	0.00111	0.00108	0.00104	0.00100
3.3	0.00097	0.00093	0.00090	0.00087	0.00084	0.00081	0.00078	0.00075	0.00072	0.00070
3.4	0.00067	0.00065	0.00063	0.00060	0.00058	0.00056	0.00054	0.00052	0.00050	0.00048
3.5	0.00047	0.00045	0.00043	0.00042	0.00040	0.00039	0.00037	0.00036	0.00034	0.00033
3.6	0.00032	0.00031	0.00029	0.00028	0.00027	0.00026	0.00025	0.00024	0.00023	0.00022
3.7	0.00022	0.00021	0.00020	0.00019	0.00018	0.00018	0.00017	0.00016	0.00016	0.00015
3.8	0.00014	0.00014	0.00013	0.00013	0.00012	0.00012	0.00011	0.00011	0.00010	0.00010
3.9	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00007	0.00007	0.00007	0.00007
4.0	0.00006	0.00006	0.00006	0.00006	0.00005	0.00005	0.00005	0.00005	0.00005	0.00004

## Loi du *t* de Student (Probabilités bilatérales)

ddl \ Seuil	0.20	0.10	0.05	0.02	0.01	0.001	0.0001	0.00001
1	3.08	6.31	12.71	31.82	63.66	636.63	6 366.84	63 725.70
2	1.89	2.92	4.30	6.97	9.93	31.60	100.00	316.39
3	1.64	2.36	3.18	4.54	5.84	12.93	28.00	60.42
4	1.54	2.13	2.78	3.75	4.61	8.61	15.55	27.78
5	1.48	2.02	2.57	3.37	4.03	6.87	11.18	17.90
6	1.44	1.95	2.45	3.14	3.71	5.96	9.08	13.56
7	1.42	1.90	2.37	3.00	3.50	5.41	7.89	11.22
8	1.40	1.86	2.31	2.90	3.36	5.04	7.12	9.78
9	1.39	1.84	2.26	2.82	3.25	4.78	6.59	8.83
10	1.37	1.81	2.23	2.77	3.17	4.59	6.21	8.15
11	1.37	1.80	2.20	2.72	3.11	4.44	5.92	7.65
12	1.36	1.78	2.18	2.68	3.06	4.32	5.70	7.26
13	1.35	1.77	2.16	2.65	3.01	4.22	5.51	6.96
14	1.35	1.76	2.15	2.63	2.98	4.14	5.36	6.71
15	1.34	1.76	2.13	2.60	2.95	4.07	5.24	6.50
16	1.34	1.75	2.12	2.59	2.92	4.02	5.13	6.33
17	1.34	1.74	2.11	2.57	2.90	3.97	5.04	6.19
18	1.33	1.74	2.10	2.55	2.88	3.92	4.97	6.06
19	1.33	1.73	2.10	2.54	2.86	3.89	4.90	5.95
20	1.33	1.73	2.09	2.53	2.85	3.85	4.84	5.86
21	1.33	1.72	2.08	2.52	2.83	3.82	4.78	5.77
22	1.32	1.72	2.08	2.51	2.82	3.79	4.74	5.70
23	1.32	1.72	2.07	2.50	2.81	3.77	4.69	5.63
24	1.32	1.71	2.07	2.49	2.80	3.75	4.66	5.57
25	1.32	1.71	2.06	2.49	2.79	3.73	4.62	5.51
26	1.32	1.71	2.06	2.48	2.78	3.71	4.59	5.46
27	1.32	1.71	2.05	2.47	2.77	3.69	4.56	5.42
28	1.31	1.70	2.05	2.47	2.77	3.68	4.53	5.37
29	1.31	1.70	2.05	2.46	2.76	3.66	4.51	5.34
30	1.31	1.70	2.04	2.46	2.75	3.65	4.48	5.30
31	1.31	1.70	2.04	2.45	2.75	3.64	4.46	5.27
32	1.31	1.70	2.04	2.45	2.74	3.62	4.44	5.24
33	1.31	1.69	2.04	2.45	2.74	3.61	4.42	5.21
34	1.31	1.69	2.03	2.44	2.73	3.60	4.41	5.18
35	1.31	1.69	2.03	2.44	2.73	3.59	4.39	5.16
36	1.31	1.69	2.03	2.44	2.72	3.58	4.37	5.13
37	1.31	1.69	2.03	2.43	2.72	3.58	4.36	5.11
38	1.31	1.69	2.03	2.43	2.71	3.57	4.35	5.09
39	1.31	1.69	2.02	2.43	2.71	3.56	4.33	5.07
40	1.31	1.69	2.02	2.43	2.71	3.55	4.32	5.05
50	1.30	1.68	2.01	2.41	2.68	3.50	4.23	4.92
60	1.30	1.67	2.00	2.39	2.66	3.46	4.17	4.83
70	1.30	1.67	2.00	2.38	2.65	3.44	4.13	4.76
80	1.29	1.67	1.99	2.38	2.64	3.42	4.10	4.72
90	1.29	1.66	1.99	2.37	2.63	3.40	4.07	4.68
100	1.29	1.66	1.99	2.37	2.63	3.39	4.06	4.66
200	1.29	1.65	1.97	2.35	2.60	3.34	3.97	4.53
300	1.29	1.65	1.97	2.34	2.59	3.33	3.95	4.50
400	1.29	1.65	1.97	2.34	2.59	3.32	3.93	4.48
500	1.29	1.65	1.97	2.34	2.59	3.31	3.92	4.46
∞	1.28	1.64	1.96	2.33	2.58	3.29	3.89	4.42