**Chaos Theory in Jurassic Park by Micheal Crichton**

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**Abstract**

In the Web Applications Design lab at the Center for Advanced Research and Technology (CART), teams were tasked with creating an expeditions page for Jurassic Park. To prepare for the project, in their English class, students read Michael Crichton’s 1990 novel, *Jurassic Park* and focused on the character, Ian Malcolm, who argues that science shows Jurassic Park as a business will fail due to the playout of chaos theory. Furthermore, learning life lessons through the chaos in *Jurassic Park* are explored as well as a discussion of how these lessons can be applied to one's everyday life. These lessons include the definition of chaos theory, how easily chaos can unfold, and who in the book *Jurassic Park* were main contributors to the downfall of the park.

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**Scientific and Literary Origins of Chaos Theory/Butterfly Effect**

According to the website, *“Taylor & Francis Online”*, chaos theory can be defined as a mathematical theory that enables the description of phenomena from the dynamics field, or the field of physics focused on the effect of forces on the motion of objects. Chaos theory is still in development, however, it dates back to 1961 when Edward Lorenz, from the Massachusetts of Technology or MIT for short, was making calculations on trying to predict the weather. In 1971, Belgian physicist David Ruelle studied Lorenz’s second discovery with chaos theory, the attractors, and found that The clearly recognizable trajectories in phase space never cut through one another and instead, formed cycles that were not concentric or on the same plane. The book, *“Beautiful Chaos”,* by G. E. Slethaug, State University of New York Press, Albany, explains chaos theory to be wild and unpredictable on the outside but when truly looked upon, it is much more organized and neat while still being as wild as you expect it to be. Another book explaining chaos theory is , *“Chaos Theory”* by R. P. Murphy (2002) 1st edition & (2010) 2nd edition, Creative Commons, and explains chaos theory on market anarchy. It explains how chaos theory could be applied to marketing like for example, if the State were to be eliminated, everything would not be lawless and instead would thrive much more than the government alternative.

**Chaos Theory at Play in *Jurassic Park***

Ian Malcolm, a character in Michael Critchton’s book, *“Jurassic Park”*, is a mathematician that specializes in chaos theory. There are a select few times when he truly mentions and describes chaos theory but a few of them are very descriptive and helpful for people to understand the meaning of it. One example from the book is, “ ‘So chaos is all just random and unpredictable?’ Gennaro said. ‘Is that it?’ ‘No,’ Malcolm said. ‘We actually find hidden regularities within the complex variety of a system’s behavior. That’s why chaos has now become a very broad theory that’s used to study everything from the stock market, to rioting crowds, to brain waves during epilepsy. Any sort of complex system where there is confusion and unpredictability. We can find an underlying order. Okay?’ ” In this piece of text we can figure out that chaos theory is not just randomness and disorder but instead has a specific pattern to it that can easily be set off in some way. On the same page of the book we also see Malcolm explain a second part to chaos theory, “ ‘I understand,’ Malcolm said. ‘I’ll get there. Chaos theory says two things. First, that complex systems like weather have an underlying order. Second, the reverse of that⎯that simple systems can produce complex behavior. For example, pool balls. You hit a pool ball, and it starts to carom off the sides of the table. In theory, that’s a fairly simple system, almost a Newtonian system. Since you can know the force imparted to the ball, and the mass of the ball, and you can calculate the angles at which it will strike the walls, you can predict the future behavior of the ball. In theory, you could predict the behavior of the ball far into the future, as it keeps bouncing from side to side. You could predict where it will end up three hours from now, in theory.’ ” This excerpt from the book allows us to understand that something that may seem as small as a ball hitting the sides of a pool table could end up being used to predict the future of the ball in question. The small system that is in play may become a larger system as time moves on. In both quotes from the book Ian Malcolm is talking to Donald Gennaro, a lawyer sent by his employers to see if the park is actually safe for visitors.

The only characters truly seen in the book taking any interest in chaos theory are Gennaro and Malcolm. Malcolm, being the chaos theorist he is, is very knowledgeable about the topic, whereas Gennaro is only willing to learn the bare minimum about the topic to try to understand why Malcolm does not think John Hammond’s Jurassic Park will go well and may even fail completely. Most characters in the book do not understand chaos theory at all due to Malcolm constantly talking about it, making it seem very uninteresting.

**Consequences of Chaos Theory**

John Hammond and Dennis Nedry are two giant contributors to the chaos that unfolds at Jurassic Park. John Hammond, the creator of the park, mainly cares about opening the park up as soon as possible and waving all problems and errors off as just a part of the attractions. Hammond is extremely money-hungry and puts off the safety of his guests in order to get more sales. Dennis Nedry is a very disgruntled employee of Hammond that works on the code of the whole park. Hammond has not been paying any of his employees and instead continues to push them to work harder as if they were not working as hard as they possibly could. Nedry was especially set off by this and was very much willing to sabotage Hammond’s whole park and dream of making organic dinosaurs. When given the opportunity to sabotage the park by a man named Lewis Dodgson who works for the rival company, InGen, pays Nedry a million and a half dollars to sabotage the park and steal dinosaur embryos. When Nedry sabotaged the park, he specifically shut off all power to the doors that allowed for all dinosaurs to become loose and dangerous, as if a dinosaur petting zoo wasn’t dangerous enough.

**Lessons Learned from Chaos**

The way that chaos theory was shown in the novel *Jurassic Park* can help teach us a lesson on how little things that may seem unimportant can add up to be a huge issue. Some examples may be procrastinating on writing that paper even though is means so much to your grade, or not tying your shoe laces very well so over time they slowly become undone and you trip over them, or something that may seem like a big deal like telling a crush how you feel could end in so many ways. The main takeaway from this novel is that no matter how big or small the changes you make in your life, you will always see a change in the future. This change could happen instantly or slowly and over time, and it could be a good change or maybe a bad change but the only thing you need to remember is that everything you do matters and counts towards your future. You could easily predict whether that change will be a good or bad thing based on what you’re doing. Texting your friends even if you have a paper due? This could lead to an unfavorable outcome like a bad grade and disappointment from your family and peers. Studying for that test coming up? You may get a good grade or you may get a bad one depending on when you studied or how long you’ve studied. Chaos theory isn’t a random occurrence but instead a common occurrence that could be used to predict outcomes to simple and complex situations no matter the circumstances.

skip for now **Conclusion**

Transition/connect previous section to the conclusion.

Mirror your introduction. (For example, if you begin with a quote, return to a brief discussion of that quote in the conclusion).

Reconnect the importance of understanding “Chaos Theory” to understanding *Jurassic Park.*

Restate the idea that one can learn and apply life lessons by understanding chaos theory.

Repeat/reword thesis statement: Explain which lessons learned from *Jurassic Park* and related to chaos theory can be applied to and possibly improve readers’ lives.

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**References**

[***https://www.google.com/books/edition/Jurassic\_Park/MNeEFe9qU3cC?hl=en&gbpv=1&bsq=chaos%20theory***](https://www.google.com/books/edition/Jurassic_Park/MNeEFe9qU3cC?hl=en&gbpv=1&bsq=chaos%20theory)